Symposium Call Center Server

1003t Installation and Maintenance Guide

Product release 1.5/3.0 Standard 1.0 July 2000

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Symposium Call Center Server

1003t Installation and Maintenance Guide

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Contents

1 Getting started with the installation 1

Overview. 2
Skills you need 3
Installation safety precautions 4
Required equipment 5
Required setup data. 6
Preparing for hardware activities 8
Required tools and safety precautions 9
Avoiding electrostatic discharge. 12
Handling cards 13
Handling hard drives. 14
1003t quick installation steps 15

2 About the server 19

Overview. 20
1003t server configuration 21
Specifications 23
Base and optional system components 26
General system monitoring. 28

3 Installing hardware 31

Overview. 32
Front panel features 33
Connecting the server to AC power 37
Inspecting the chassis 38
Adding peripherals to the server. 39
Connecting the ELAN 42
Connecting the CLAN 43
Connecting the software feature key adapter 44
Connecting the modem. 46
Powering up 48
Installing the operating system. 50
Logging on to the server. 51

4 Configuring the server 53

Setting communications protocols 54
Reconfiguring the remote access service modem 58
Changing the computer name 61
Recovering from a corrupted CMOS 62
Configuring the BIOS 63
Configuring the Embedded Video Controller 68
Configuring the add-in ELAN Ethernet controller 69
Executing hardware diagnostics 70

5 Setting up the hard drives 71

Overview 72
Upgrading NetRAID firmware 73
Configuring the RAID system 74
Configuring the optional tape backup drive 78
Partitioning a hard drive 79
Installing MS-DOS 6.20 81
Copying drivers from a CD 83
Creating driver, BIOS, firmware upgrade, and NetRaid Utilities disks 85
Upgrading BIOS and SCSI backplane firmware 87
Installing Windows NT Server 3.51 88
Installing Windows NT Server 4.0 98
Installing the tape device driver 115
Installing NetRAID Assistant 118
Making an emergency repair disk 119

6 Maintaining the software 121

Overview 122
Configuring the virtual memory 123
Tuning the server's performance 125
Configuring the modem 126
Preparing the server for remote access with pcANYWHERE32 130
Making an emergency repair disk 134
Performing standard procedures 135
Using the Symbios configuration utility 136
Configuring ISA non-Plug-and-Play boards (optional) 137

7 Performing hardware maintenance 141

Section A: Chassis components 143
Overview. . . . 144
Removing the 1003t server covers 145
Replacing hot-swappable components 147

Section B: RAID system 151
Overview. . . . 152
Integrated NetRAID controller 154
NetRAID utilities 157
NetRAID express tools 158
Disk locations 159
Replacing and configuring drives 160

Section C: Slot assignments and IRQ mapping 163
Overview. . . . 164
1003t slot assignments 165
1003t IRQ mapping 167

Section D: Installing additional processors 169
Installing or Replacing Pentium III processors. . . . 170

Section E: Optional cards and tape drives 173
Replacing ELAN cards 174
Installing CLAN cards 179
Replacing CLAN cards 182
Replacing the SCSI card 187
Installing a tape drive 191

Section F: Media drive bays 193
Overview. . . . 194
Removing drive carriers from the media drive bay 195
Removing media drives 197
Installing a drive in the media bay 198

Section G: Replacing memory 199
Overview. . . . 200
Installing additional memory 201

Section H: Installing mass storage devices 203
Overview. . . . 204
Supported mass storage devices 205
Installing a hot-swap hard drive 209
Removing a hot-swap hard drive 212

8 Troubleshooting 213
Overview. 214

Section A: Troubleshooting tools 215
Overview. 216

Section B: DiagTools 217
Overview. 218

Section C: Diagnostic commands 221
Overview. 222
Setting static route command - route 223
Tracing routes command - tracert. 225

Section D: Common installation problems 227
Overview. 228
Troubleshooting sequence for NetRAID 229
Other installation problems. 231

Section E: Error messages 235
Overview. 236
POST error codes 237
NetRaid Power-up (Boot) error messages 240
BIOS error messages 245

Section F: NetRaid troubleshooting 247
NetRAID troubleshooting. 248

Glossary 251

Index 267

Chapter 1

Getting started with the installation

In this chapter

Overview	2
Skills you need	3
Installation safety precautions	4
Required equipment	5
Required setup data	6
Preparing for hardware activities	8
Required tools and safety precautions	9
Avoiding electrostatic discharge	12
Handling cards	13
Handling hard drives	14
1003t quick installation steps	15

Overview

Introduction

The *1003t Installation and Maintenance Guide* provides information and instructions for installing and maintaining a 1003t for Symposium Call Center Server. The guide also covers any troubleshooting problems that might arise.

Who should read this guide

This guide is for planners, administrators, technicians, and engineers responsible for installing and maintaining the 1003t. It is intended to act as a guide for installing, repairing, replacing, and upgrading hardware and software components. It assumes that the reader has basic computing skills, is familiar with necessary safety procedures, and has the hardware documentation provided by the manufacturer available as a reference.

Assumptions

This guide assumes that you are planning to install and maintain or troubleshoot the 1003t.

Skills you need

Purpose

This section describes the skills and knowledge you need to use this guide effectively.

Nortel Networks product knowledge

Knowledge of, or experience with, the following Nortel Networks products is helpful when administering the 1003t:

- 701t server
- 702t server
- 1000t server
- 1001t server

PC experience or knowledge

Knowledge of, or experience with, the following PC products is helpful when administering the 1003t:

- Microsoft Windows 95, Windows 98, or Windows NT

Other experience or knowledge

Other types of experience or knowledge that might be useful include

- client/server architecture
- Internet Protocol (IP)
- database management
- programming

Installation safety precautions

Introduction

Before you install the server, take safety precautions to avoid injury or damage to you and the server. Precautions made now make the task of installing or maintaining the server much easier.

Site safety

Prior to installing your server, verify each of the following items:

- the area is clean and clear of debris
- there is adequate space for all equipment
- a desk, shelf, or table space is available for the server, SVGA monitor, keyboard, mouse, and modem
- there is adequate air flow and ventilation around the equipment
- no heat sources are located near the equipment
- there is space for access to the front, side, and rear panels of the server
- the area is isolated from strong electromagnetic fields and electrical noise sources including
  - air conditioners
  - large fans
  - motors
  - radio or TV transmitters
  - high-frequency security devices
- there are adequate grounded electrical outlets or power bars for all equipment. Have one outlet for each
  - server
  - monitor
  - modem power cord
  - Embedded LAN (ELAN) hub power cord
  - PC client

Required equipment

Introduction

The following list of equipment is supplied with each server. The actual equipment at a customer's site depends on the number of servers to be installed at the site, single server configuration, and the application. Prior to installation, ensure that you have the following equipment and data supplied by the customer.

Equipment

- dual Pentium III processors
- minimum 256 Mbytes of memory
- SVGA monitor
- keyboard
- mouse
- CD-ROM drive
- ELAN (Embedded Local Area Network) connection
- adequate free space on the hard drive
- server with Windows NT and the required Service Pack installed
- hub for the ELAN (customer supplied)
- UPS for the server (customer supplied)
- cable to connect ELAN card to customer's ELAN network
- modem, power cable, and serial cable

Required setup data

Introduction

Use the information that you record in this section for the initial Windows NT configuration.

Data

The following data is required for some procedures:

- user name, password, and domain name for access to CLAN (Customer Local Area Network)
- list of unique names and IP addresses for all equipment on both CLAN and ELAN

Serial number

The Windows NT Product ID data supplied for this installation contains the following information:

- customer’s company name
- company representative’s name
- computer name
- workgroup name
- administrator password
- type of modem for the server
- user name for CLAN access
- password for CLAN access

IP addresses

Record the IP addresses and names supplied for the customer PCs and MAT PC, the server, and other equipment that are accessible through the CLAN and the ELAN.

The Customer's LAN administrator is the source for IP addresses, subnet masks, and gateways.

IP address table

Name	IP address	Subnet mask	Gateway, description, equipment name, or comments
ELAN M1 Primary			
ELAN M1 Secondary			
ELAN server			
ELAN router/ gateway IP address			
CLAN server			
CLAN router/ gateway IP address			
RAS			
RAS			
CLAN client			
CLAN client			
CLAN client			
CLAN client			

Preparing for hardware activities

Introduction

Hardware activities include installing and maintaining your server. Before you begin any of these activities, collect the tools you need and follow recommended safety precautions.

This section discusses the tools and equipment required for performing hardware activities in the field. Recommended safety precautions for electrostatic discharge, handling cards, and handling your server are also included.

Required tools and safety precautions

Introduction

If you need to replace or upgrade any system parts, follow Nortel Networks tools and safety guidelines to prevent personal injury and damage to the server or replacement parts.

WARNING

Risk of personal injury and equipment damage

Field maintenance must always be performed by fully qualified, trained personnel.

Tools and materials checklist

Use this checklist for the tools and materials you need to perform maintenance and diagnostics tasks.

Check	Description
	Torx T-15 screwdriver
	Standard slot-head screwdriver (1/4" and 1/2")
	Sidecutters
	Jumper removal tool or needle nose pliers
	Tape measure for determining cable lengths
	Tweezers
	Antistatic ESD wrist strap (recommended)
	Pen or pencil for writing notes, cable lengths, and cable identifications
	Flashlight for examining interior of chassis
	Cable tie wraps

Check	Description
	Three blank tapes for full backup procedure
	Three blank tapes for partial backup procedures
	Head-cleaning tape kit
	Cable identification labels
	Equipment log (records the model and serial number of the system, all installed options, and other information)
	Windows NT emergency disk (contains the configuration data for Windows NT)
	Nortel Networks Operating System Setup Disks (three disks — updates the software drivers, if required)
	Symposium Call Center Server Operating System Recovery Kit CD-ROM
	Microsoft DOS 6.20 disks (three disks — reinstalls the operating system for maintenance and diagnostics)
	Intel Ethernet LAN Adapter Driver disk
	Keycode data (provides the software features that you will be installing)
	pcANYWHERE32 software (provides remote access by Nortel Networks service; it is on the Symposium Call Center Server Operating System CD-ROM)
	HP DiagTools Disk for server diagnostics
	HP Navigator CD-ROM

Approved replacement parts

Before replacing any parts on your server, contact your Nortel Networks customer support representative for a list of approved add-in boards and peripheral devices. The use of nonapproved replacement parts can cause serious system problems or void your Nortel Networks warranty.

General safety

Nortel Networks recommends that you observe these safety guidelines as you work on your server:

- Plug the computer and peripheral devices into properly grounded power sources to prevent electric shock.
- Use a surge protector or uninterruptible power supply to protect your system from sudden increases and decreases in electrical power.
- Ensure that nothing rests on your server's cables and that cables cannot be tripped over or stepped on.
- Do not handle food or liquid around the server.
- Do not push any objects into the openings of your server.

Safety precautions for working with your server

Observe these safety guidelines before removing the top cover of your server:

1. Turn off all peripheral devices connected to the server.
2. Turn off the system by using the push-button on/off power switch. Unplug the AC power cord from the system or wall outlet.
3. Label and disconnect all peripheral cables and all telecommunication lines connected to the I/O connectors or ports on the back of the system.
4. Provide electrostatic discharge (ESD) protection by wearing an antistatic wrist strap attached to the chassis ground of the system when handling components. Attach your wrist strap to any unpainted metal surface.

Cooling and airflow

For proper cooling and airflow, always install the chassis top cover before turning on the system. You risk damaging system parts if you operate the system without the cover in place.

Avoiding electrostatic discharge

Introduction

Electrostatic discharge (ESD) can seriously damage component parts such as disk drives and boards. Nortel Networks recommends that you perform the maintenance procedures described in this section at an ESD workstation.

Antistatic wrist strap

If an ESD workstation is not available, you can wear an antistatic wrist strap for ESD protection. Ground the ESD wrist strap by attaching it to any unpainted surface on your system's chassis.

While you work

As you work inside the server, periodically touch an unpainted surface to discharge any static your body might have accumulated.

Conductive foam pads

Expansion cards are extremely sensitive to ESD. After removing a card from its protective wrapper or from the system, place it component-side up on a conductive foam pad. If possible, use antistatic floor pads and workbench pads.

Handling cards

Introduction

Electronic components are sensitive to the environment and to electrostatic discharge. To protect equipment and prolong the useful life of components, Nortel Networks recommends that you follow the precautions described below.

Avoid electrostatic discharge

Electrostatic discharge (ESD) affects the performance and decreases the useful life of system components. Use caution when handling Error Code Correction (ECC) memory modules, SBC cards, and add-in boards to prevent damage. Wear an ESD wrist strap when handling system parts.

Precautions for handling cards

Take these precautions with any procedure that includes an add-in board:

- After removing a board from its protective wrapper or from the server, place it component-side up on a grounded, static-free surface.
- Do not slide a board over any surface.
- Do not touch board components or gold-edge connectors on the board.
- Hold a board by the top edge or by the side edges.

Installing boards

When installing boards on the server, remember the following points:

- The backplane is flexible and supported with stand-offs.
- Board slots resist connector insertion.
- Firm, steady force seats a board in its slot properly.
- Boards seat with friction followed by a solid stop.
- External connector plates, attached to add-in boards, are seated in the rear panel and secured with a screw.

Handling hard drives

Introduction

Hard drives are extremely sensitive to vibration and physical shock. To protect equipment and prolong the useful life of hard drives, Nortel Networks recommends that you follow the precautions described below.

Avoid vibration or physical shock

Hard drives are susceptible to even slight vibrations. A hard disk can be damaged if it is placed on a table that is accidently knocked or moved. To prevent damage, use caution when handling hard drives.

Precautions for handling hard drives

After removing a hard disk from its protective wrapper or from the server, place it on an antistatic, padded workbench or workstation to avoid movement or jarring.

Shipping damage

If your hard disk is shipped independently for either an upgrade or a replacement, note any dents or damage on the padded container and packaging. Keep the container to prove that the part was damaged during shipping and handling.

Removing hard drives

The drives are hot-swappable and can be removed without a system shutdown.

Storing hard drives

If you purchase extra hard drives, store these drives in the original padded container. In addition, store the drives away from places where they might be moved or jarred.

1003t quick installation steps

Introduction

The following section provides the required steps for installing the 1003t server.

1 Inspect the base system.

CPC code for the base system is NTRH9100. The system includes the following components:

HP Product Number	Qty	Product Description
D7105AV	1	HP NetServer LH4 500/512 SE base model with three 500-watt power supplies
Included in D7105AV	2	Pentium III Xeon 500 MHz, 512 kbyte ECC L2 cache
Included in D7105AV	1	HP NetServer Hot Swap Ultra2 internal storage cage
Included in D7105AV	1	HP 32x Max EIDE CD-ROM drive
Included in D7105AV	1	HP Remote Assistant (integrated)
Included in D7105AV	1	HP Netserver keyboard
Included in D7105AV	1	1.44 Mbyte floppy disk drive
Included in D7105AV	1	HP Mini-DIN mouse
Included in D7105AV	1	HP Netserver Navigator for LH4
Included in D7105AV	1	power cord
D7113AV	1	HP LH4/4r Xeon 500/512 CPU upgrade SE
D6112AV	1	HP 256 Mbyte 50ns ECC EDO DIMM kit SE
D6107AV	1	HP 9.2 Gbyte 10K H/S wide Ultra2 SCSI disk SE
D5013AV	1	HP NetServer 10/100TX PCI LAN card SE

HP Product Number	Qty	Product Description
D6095AV	1	HP redundant power supply module (SE)
D6077AV	1	HP internal drive capacity upgrade (SE)
D5025AV	1	HP Ultra/Wide SCSI adapter SE
D2199A	1	HP DAT/tape/CD-ROM trays, 3-pk
D4282B	1	HP NetServer LH 3 and LX Pro (SCSI) cables to connect to NTRH9034

2 If a SCSI card is not already installed, insert the HP Ultra/Wide SCSI Adapter in PCI slot 1.

3 Inspect the ELAN installation. The ELAN HP Ethernet Card should be installed in PCI slot 2.

4 Install the CLAN. Install NTRH9010 Token Ring PCI card or the HP Ethernet Card in PCI slot 3.

5 Inspect the hard drive(s) installation. The six drives shipped with the system should be installed as defined in “Disk bay assignments” on page 161.

6 Install and cable the NTRH90XX SLR32 tape drive and set the following settings:

SCSI	ID2
Termination to the bus	Enabled
Active Termination	Disabled
Parity Checking	Enabled
Remaining setting	Default setting

a. Install the tape drive unit in the bay below the IDE CDROM (second bay from the top of the chassis standing).

b. Route the SCSI cable through the top of the fan housing cards all the way to the tape drive.

c. Terminate the SCSI bus with A0766997 Active terminator.

d. For information on the jumper settings, refer to the OEM documentation shipped with the drive or to the instruction label that is attached to the drive.

7 Update the SCSI backplane firmware.

With the system configured using the previous steps, insert the disk labeled NTRH8046 1003T SCSI Backpane Firmware into floppy A: and power up the server.

Result: The SCSI Backplane firmware is updated and the system prompts for a reboot.

8 Configure the BIOS Settings using the procedures defined in “Configuring the BIOS” on page 63.

9 Set up the RAID packs and configure RAID as per “Configuring the RAID system” on page 74.

10 Disable the Adaptec SCSI card BIOS following the procedures in “To temporarily disable the SCSI card BIOS” on page 78.

11 Install the operating system and SCCS system.

12 Enable the Adaptec SCSI card BIOS following the reverse procedures in “To temporarily disable the SCSI card BIOS” on page 78.

13 Label the server by attaching the regulatory label on the backplane of the chassis. Attach the branding label on the front bezel of the chassis on the space left between the venting sections.

Chapter 2

About the server

In this chapter

Overview	20
1003t server configuration	21
Specifications	23
Base and optional system components	26
General system monitoring	28

Overview

Introduction

This section provides a summary of the 1003t server's configuration and specifications.

Included are descriptions of the following elements:

- server chassis
- approved peripherals
- required components
- optional components
- technical and environmental specifications
- general system monitoring

1003t server configuration

Introduction

The 1003t server incorporates dual Pentium III processors (upgradable to quad Pentium III processors) and redundant hot-swappable features for fans, switchable power supplies, and SCSI hard drives.

Alarm board

The alarm board is located under the baseboard. It connects to the status display panel on the front.

Approved peripherals

The following peripherals are tested and approved by Nortel Networks to work properly with the 1003t server.

Keyboard, monitor, and mouse

The 1003t server does not support headless operation; therefore, a keyboard, monitor, and mouse must be connected to the server.

Floppy drive

One floppy drive is required in the server. You need the floppy drive for some software installation and related procedures.

CD-ROM drive

One CD-ROM drive is a minimum standard requirement for the server. You need this drive for software installation and configuration procedures.

Tape drive

An optional tape drive is available for the server. Use this drive to save and store data.

SCSI drives

Up to 12 SCSI hard drives can be installed in the primary and secondary hot-pluggable SCA drive bays. SCCS uses three drives in each drive bay.

Modem

A dial-up modem is standard and is connected to the server through a serial port at the rear of the chassis.

Specifications

Technical specifications

Component	Specifications
Processor	Dual or quad Intel Pentium III Xeon 500 MHz with L2-512K cache
Base type	PCI 2.1
Bus data transfer rate	up to 132 Mbytes
BIOS	Phoenix and NetRAID BIOS
Firmware	1 Mbyte flash ROM
Nonvolatile RAM	32 kbytes of NVRAM of disk configuration space
SCSI controllers	Symbios Logic 53C895 on each channel
SCSI data transfer rate	up to 80 Mbytes/sec with Ultra2 drives
SCSI bus	low-voltage differential or single-ended SCSI
SCSI termination	active
Devices per SCSI channel	6 to 8, depending on SCSI mode and storage cabinet
SCSI device types supported	low-voltage differential drives in the mass storage cage or non-hot-swappable, single-ended SCSI disk drives
SCSI channels	2
RAID levels supported	0, 1, 3, 5, 10, 30, and 50

Component	Specifications
SCSI connectors	68-pin, high-density internal connectors 68-pin, ultra-high-density external connectors

Environmental specifications

Environmental specifications for the 1003t server are listed below. The "Nonoperating" label under the Condition column refers to the specifications during shipping or storage, or both.

Parameter	Condition	Specification
Temperature	Operating	+ 5° C to + 35° C
	Nonoperating	- 40° C to + 65° C
Humidity	Operating	20 percent to 80 percent, relative humidity, noncondensing
	Nonoperating	5 percent to 95 percent, relative humidity, noncondensing
Shock	Operating	2.0 g, 11 msec, 1/2 sine
	Nonoperating	20 g, 11 msec, 1/2 sine
Altitude	Operating	-30 to 3000 m
	Nonoperating	-30 to 12 000 m

Weight and dimensions

Parameter	Specification
Height	495 mm (19.5 in.)
Width	351 mm (13.8 in.)
Depth	724 mm (28.5 in.)

Parameter	Specification
Weight	35 to 50 kg (77 to 110 lb)
Voltage	110 to 127 VAC, 5 A @ 50/60 Hz 200 to 240 VAC, 2.5A @ 50/60 Hz
Voltage range	90 to 132 VAC @ 47/63 Hz 180 to 264 VAC @ 47/63 Hz
Power source	550 watt continuous

Worst case	Volt	V/A	A	W
	100	1170	11.7	1140
	120	1160	9.7	1130
	200	1130	5.9	1100
	230	1120	4.9	1100

Base and optional system components

Introduction

The 1003t server is shipped in a variety of configurations. You can order a server with some optional components already installed.

Base components

The 1003t server is shipped with the following installed and configured components:

- server (including chassis, dual CPUs (optional quad CPUs), memory, mouse, keyboard, floppy drive, and CD-ROM drive)
- hard drives (three per channel)
- SCSI tape drive and driver disk
- ELAN Ethernet network card (optional)
- CLAN card (optional)
- network drivers
- PCI SCSI controller (for tape drive)
- four 300-watt power supplies

Requirements for troubleshooting and maintenance

The following components are essential to perform diagnostics, installation, and maintenance procedures:

- minimum vintage BIOS upgrade disk
- MS-DOS 6.20 installation media (three disks)
- Windows NT 4.0 disks
- Windows NT 4.0 Service Pack (comes on operating system CD)
- Windows 3.5.1 disks (if used)
- Windows NT 3.5.1. Service Pack (if used—five disks)
- server 4.0 installation media (three disks, one CD-ROM disk)

- RAID controller driver disk
- HP DiagTools diagnostics software
- LH4 Navigator CD-ROM
- blank backup tape for execution of tape diagnostics
- platform-specific information disk
- firmware update disk

NetRAID controller

The 1003t server contains an integrated NetRAID controller. NetRAID technology lets you link multiple hard drives together and write data across them as if they were one large drive. With the integrated NetRAID controller, you can configure your linked drives into a RAID (Redundant Array of Independent Disks) subsystem.

For more information on NetRAID, see “Configuring the RAID system” on page 74.

General system monitoring

Introduction

The server hardware details, software version, and activities can be monitored using the front panel buttons, LEDs, and the LCD screen.

Monitored events

The following events can be monitored using the front LCD display LEDs and browsing buttons:

- hard drive, fan, or power supply failure
- inappropriate configuration
- abnormal functionality, which is signaled first by an LED flashing in red/amber. Use the LCD screen and the navigation buttons to display the details of the failure in the Event section.
- BIOS or firmware versions, which can be displayed using the LCD screen without restarting or powering down the server

To empty the event log

In some cases, the hardware event log might become full. To empty the event log, follow these steps:

1. Restart the sever with the NTRH8045 LH4 navigator CD inserted in the CD-ROM drive.

   Result: The system boots from the CD-ROM to the LH4 Navigator menu.
2. Click NetServer Utilities.
3. Click More NetServer Utilities.
4. Click Event Log Display Utility.
5. Use the Tab key to select Clear log NVRAM, and confirm choosing YES.
6. Exit the Event Log Utility.

7 Exit the HP Navigator CD menu and restart the server.

Result: The Event log should be now empty.

Chapter 3

Installing hardware

In this chapter

Overview	32
Front panel features	33
Connecting the server to AC power	37
Inspecting the chassis	38
Adding peripherals to the server	39
Connecting the ELAN	42
Connecting the CLAN	43
Connecting the software feature key adapter	44
Connecting the modem	46
Powering up	48
Installing the operating system	50
Logging on to the server	51

Overview

Introduction

Once you have completed preinstallation checks and procedures, you are ready to install the hardware.

This section provides information and procedures for

- checking front panel features
- setting up the hardware
- connecting the server to AC power
- inspecting the chassis
- adding peripherals to the server
- connecting the ELAN
- connecting the CLAN
- connecting the modem
- installing the software feature key adapter
- powering up the computer
- installing the operating system (if necessary)
- logging on to the server

Front panel features

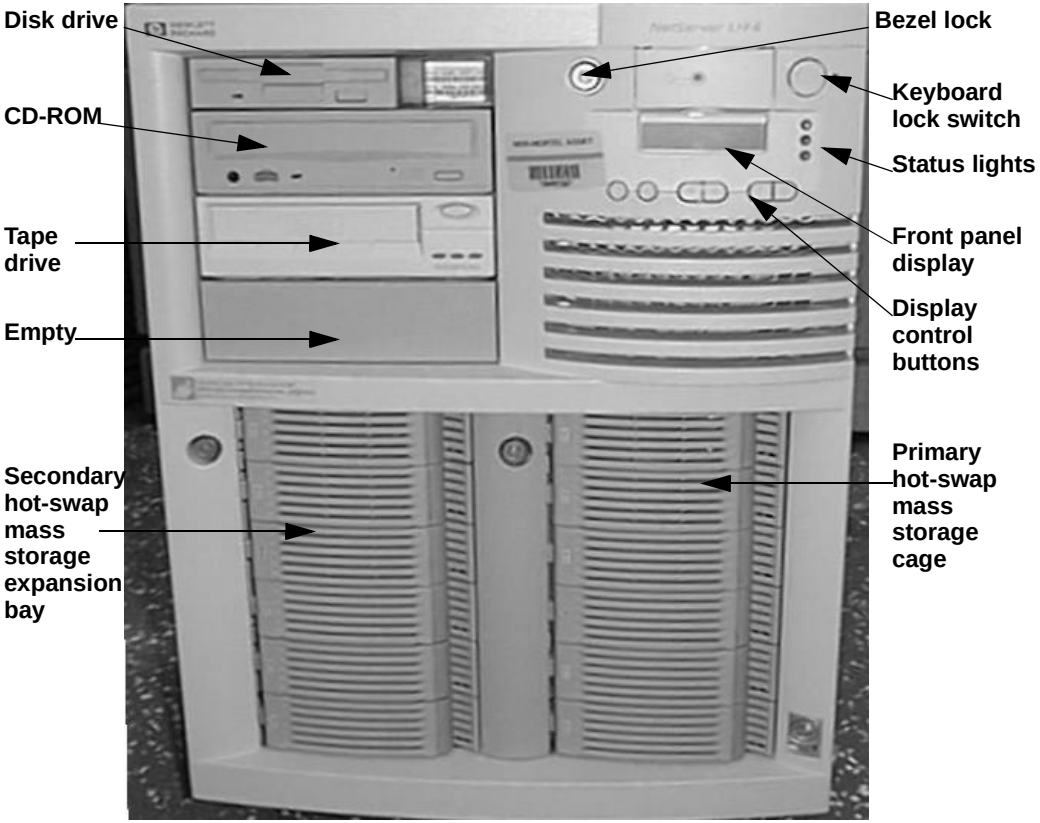
Introduction

Prior to installing the server, familiarize yourself with the server's switches and indicators. The figure on the next page shows the server's front panel.

You control the server with the panel located on the front of the server. The server communicates to the network and other devices through the connectors on the rear panel. This section describes the controls and communication connectors.

Front view of the server

The front view of the 1003t server chassis shows two hot-swap drive bays. The left drive bay holds six SCSI-3 hard drives with hot-pluggable carriers, as does the right bay. The media drive bay, located on the upper left, houses the disk drive, CD-ROM, and tape drive.


Disk drive
CD-ROM
Tape drive
Empty
Secondary hot-swap mass storage expansion bay
Bezel lock
Keyboard lock switch
Status lights
Front panel display
Display control buttons
Primary hot-swap mass storage cage

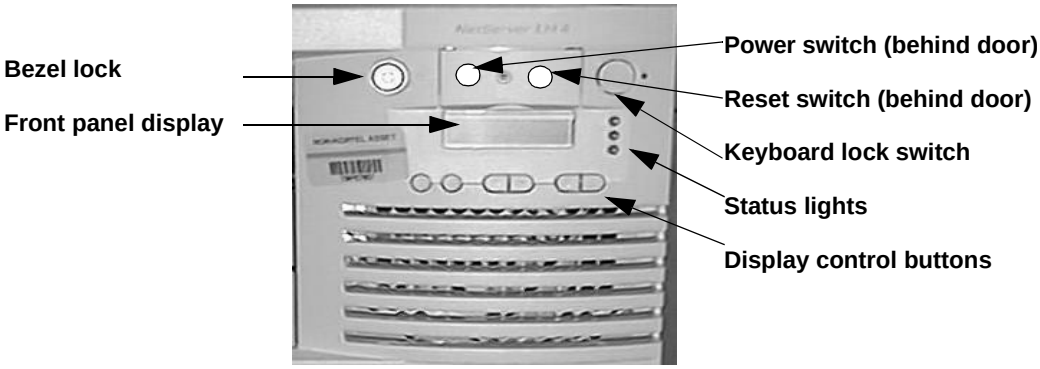
Front panel control and indicator definitions

Bezel lock	Locks the system to prevent unauthorized use.
Power switch	DC power switch and indicator light. Turns the NetServer on and off. The switch is protected by a door on the front panel. To turn the server on, push once. To turn the server off, push again.
RESET	Resets the server from the internal ROM. This switch is located behind the protective door on the front panel.
Keyboard lock	Keyboard lock and indicator light. Locks the system keyboard to prevent unauthorized use.
Front panel display	Status screen. Reports various types of system status. The buttons directly below this screen control the menu functions.
Display control buttons	Button to return to the previous selection. Button to select a menu item. Buttons to scroll up or down. Buttons to scroll right or left (not used).
Status lights	Status LEDs that indicate the system status Green — normal operation Yellow — abnormal operation Red — problem detected

The panel menu, as shown on the status screen, displays the following information:

System information	Reports system hardware details and software version numbers.
Field replaceable unit information	Identifies part and revision numbers for components.
Contrast adjustment	Use the arrow keys to change the LCD contrast for better readability.

Status panel (close-up)



Rear panel controls, ports, and indicators

- Serial Port A is a standard serial port.
- Serial Port B is a standard serial port.
- The Parallel Port is a standard parallel port.
- The Mouse Port accepts a standard PS2 style mouse.
- The Keyboard Port accepts a standard PS2 style keyboard.
- The Monitor Port accepts a monitor with up to 1024 x 768 x 256 resolution, with a 60-75Hz video refresh rate. The server contains 2 Mbytes of video RAM.
- The server comes with four 300-watt power supplies installed. The fourth power supply prevents service interruptions from a single power supply failure.
- The Power Connector accepts two standard power cables to connect the server with the site AC power source.

Connecting the server to AC power

Introduction

When you connect the server to an AC power source, the server temporarily draws additional current. This occurs even when the system is in standby mode. This “inrush current” is much greater than the server’s normal operating needs. Generally, your external AC power source can handle the inrush current.

However, if you install several servers on one circuit, precautions are necessary. If there is a power failure and power is then restored, all the servers immediately begin to draw inrush current at the same time. If the circuit breakers on the incoming power line have insufficient capacity, they might trip and thus prevent the servers from powering up.

When preparing your site for installation, allow for the additional inrush current. Follow these circuit breaker recommendations before installing the server at your site:

- In North America, use only a 20 A circuit with one NEMA AB1class 14B breaker for each AC power connector.

Status lights

The top status light flashes red if only one AC cord is connected to the server. Both AC cords must be plugged in for the server to be fully powered.

Inspecting the chassis

Introduction

To ensure that the system components are connected properly, perform a visual check for loose boards or foreign matter in the chassis. Be sure to inspect the chassis before you apply power to the server.

To inspect the chassis

CAUTION

Risk of equipment damage

Use an ESD wrist strap to protect static-sensitive components.

1. Unlock and remove the front cover.
2. Remove the screws securing the top and side covers from the front of the chassis.
3. Remove the top and side covers.
4. Clip the lead from your ESD wrist strap to an unpainted section of the chassis.
5. Carefully check all cards to ensure they are fully seated on the baseboard.
6. Check for any loose wires or foreign objects, such as loose screws, inside the chassis.
7. After you have completed the inspection, remove the ESD clip and reinstall the top and side covers. Secure the covers with the screws, and then secure and lock the front cover.

Adding peripherals to the server

Introduction

You need to add peripheral devices to your server. This procedure helps you to add the mouse, keyboard, and monitor.

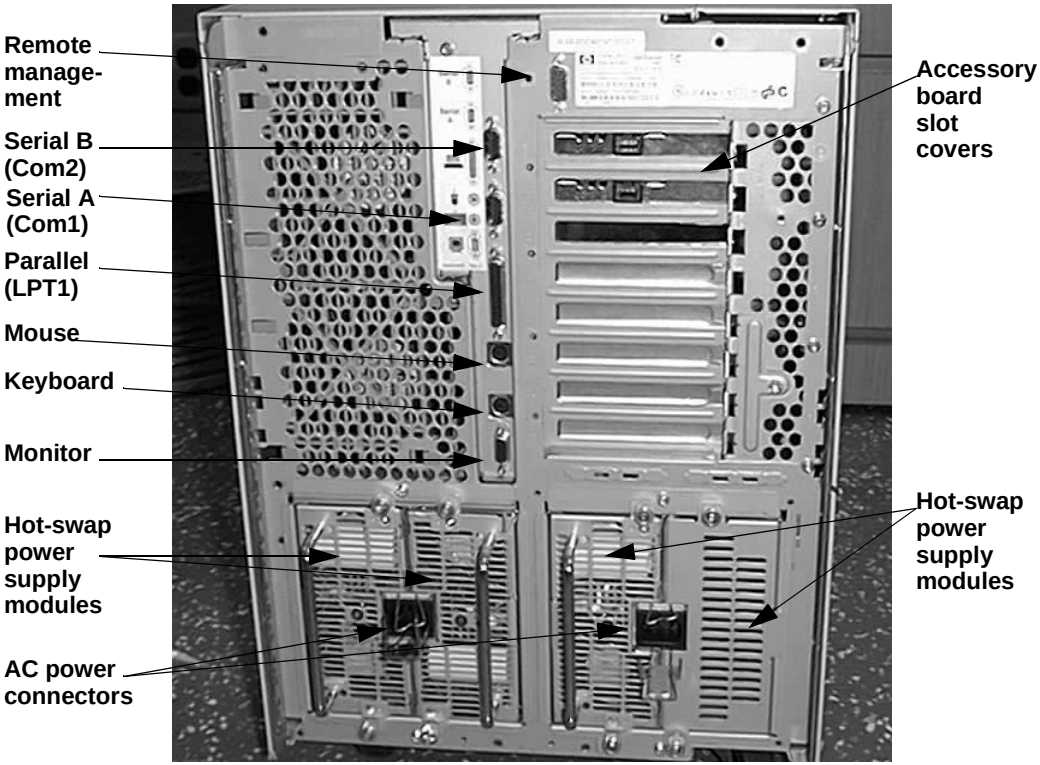
If you have an uninterruptible power supply (UPS), refer to the instructions supplied with it.

The server performs a diagnostic test when it is connected to an external power source, and then performs another test when the power switch is turned on. If an error condition occurs, note any error code appearing on the front panel, and then refer to the Troubleshooting chapter on page 213.

Before you begin

Familiarize yourself with the legend that is located adjacent to the peripheral connector panel at the back of the server. This legend shows the symbol for each peripheral and which connector to use.

Rear panel connections



Note: The SCSI card for the tape drive is not shown in this photograph. See "1003t slot assignments" on page 165 for SCSI, ELAN, and CLAN card slots.

To connect peripherals and power cord to the server

1. Ensure that the server is not plugged into a power source.
2. Plug the keyboard connector into the PS/2 keyboard connector.
3. Plug the mouse connector into the PS/2 mouse connector.
4. Plug in the monitor to the video connector on the video card. Tighten the screws on the connector.

5 Plug the two AC cords into the back of the panel and fasten their clamps. Plug the other ends into wall receptacles or power bars.

Note: *Do not* turn on the server at this time.

Connecting the ELAN

Introduction

An Embedded Local Area Network (ELAN) card is a minimum system requirement. It is the private LAN used to connect Nortel Networks equipment at the customer site. The Ethernet hub might be supplied with the server, or it might be supplied by the customer.

To connect the ELAN

1. Refer to the appropriate slot assignment diagram (page 165), and locate the slot assigned to the ELAN card for that configuration. Make a note of the slot. If it is a dual network configuration, make a note of the CLAN slot.
2. Connect the ELAN network cables from the Nortel Networks equipment to the Ethernet hub.
3. Connect the LAN cable from the ELAN card in the server to the hub.
4. Plug in the power cord for the hub.

Connecting the CLAN

Introduction

The Customer Local Area Network (CLAN) card connects Nortel Networks systems to the customer's internal LAN. It can be Token Ring or Ethernet. Install this card in a dual network configuration.

To connect the CLAN

1. Refer to the appropriate slot assignment diagram (page 165), and locate the slot assigned to the CLAN card for that configuration. Make a note of the slot.

   Note: In dual network configurations, you have already determined the ELAN card and connected it. Therefore, the remaining network card is the CLAN card, which needs to be connected.

2. Connect the cable from the CLAN to the CLAN card in the server in accordance with customer site networking guidelines.

3. Plug in the power cord for the hub.

Connecting the software feature key adapter

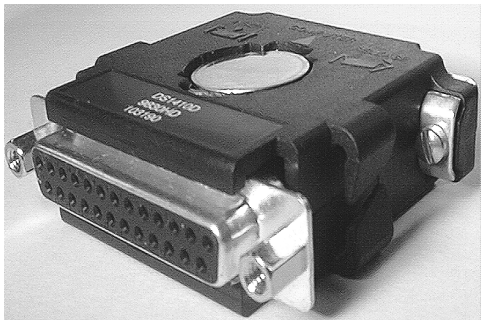
Introduction

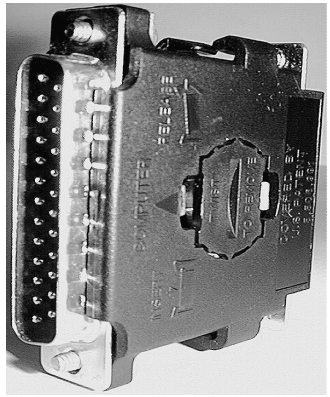
The Symposium Call Center Server installation package includes a software feature key adapter or dongle. This device verifies that you have the software package that was purchased for this system. You can set up and test Symposium Call Center Server without the dongle. However, before you connect to the switch to go live, you must ensure that the dongle is attached to the parallel port on the back of the server. Without the dongle, the switch and the server cannot communicate.

The software feature key is a security device that stores the server's unique serial number. It is embedded in the dongle, which plugs into the parallel port.

Note: This adapter is only used for the Symposium Call Center Server.

Nortel Networks software feature key adapter





Tools required

- Phillips No. 1 screwdriver

To install the software feature key adapter

1. Ensure that there is no cable connected to the parallel port.

   Note: The parallel port is also known as the printer port or LPT1. It is located at the rear of the chassis. See “Rear panel connections” on page 40.

2. Plug the male end of the adapter to the parallel port. The male end of the adapter is shown in the picture on page 44.

Connecting the modem

Introduction

An external U.S. Robotics Sportster modem connected to a serial port on the server provides connectivity for technical support personnel. The modem is already configured in the operating system when the server is delivered. Use this procedure to connect the modem.

To connect the modem

1. Connect one end of a serial RS-232 cable to the modem.
2. Connect the other end of the cable to the COM1 port on the server.
3. Check that the modem switches are set as follows:

Switch position	Up	Down	Function
1	n		DTR Normal DTR Override
2	n		Verbal Results Code Numeric Results Code
3			Suppress Results Codes Display Results Codes
4	n		Echo Offline Commands No Echo, Offline Commands
5	n		Auto Answer on First Ring or Higher if Specified in NVRAM Suppress Auto Answer
6	n		Carrier Detect Normal Carrier Detect Override

Switch position	Up	Down	Function
7	n		Load NVRAM Defaults Load Factory Defaults
8		n	Dumb Mode Smart Mode

4 Connect an analog phone line to the modem.

5 Connect a power cord to the modem.

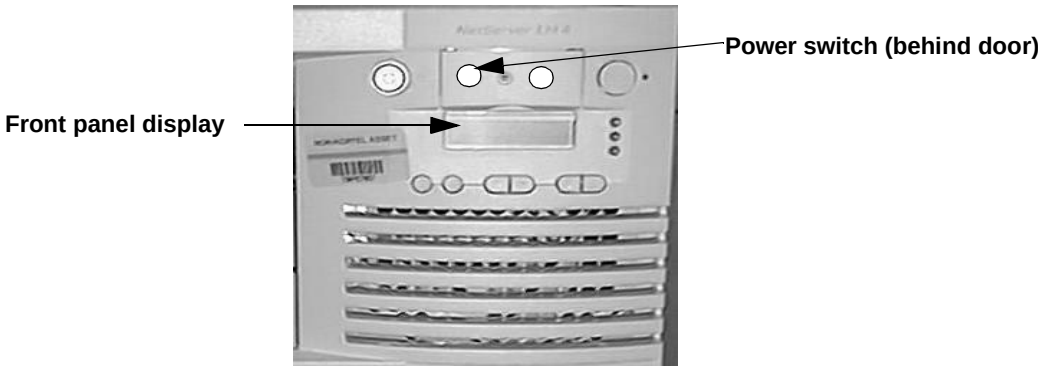
Powering up

Introduction

At this point, the server is connected to AC power, and the peripheral equipment is attached. The server is delivered with the operating system installed and the peripherals configured. You can power up and check the results of the power-on test at this point.

To power up the server

Press and release the power switch as shown in the following diagram:



Power-on tests

The server runs a set of diagnostic tests when it is first powered up. If the server passes the tests, the following message appears on the front panel display:

```
server
LH 4
```

If the server does not pass the tests, the following message appears:

```
<error code>
Display now?
```

Press Enter to view the error message. Record the error message, and refer to POST Codes in Chapter 8, “Troubleshooting.”

Installing the operating system

Introduction

If Windows NT 4.0 has been installed, proceed with “Logging on to the server” on page 51.

Installing Windows NT 4.0

If the server has been delivered without an operating system, or you want to install the customer’s licensed copy of the software, see “Installing Windows NT Server 4.0” on page 98. You must also install Service Pack 3. When finished, return to “Logging on to the server” on page 51.

Installing Windows NT 3.51

It is possible for the server to run on an older version of Windows NT. If you want to install the customer’s licensed copy of the software, see “Installing Windows NT Server 3.51” on page 88. You must also install Service Pack 5. When finished, return to “Logging on to the server” on page 51.

Logging on to the server

To log on to the server as Administrator

1. Start the server with Windows NT.
2. Press Ctrl-Alt-Delete.

   Result: The logon dialog box appears.
3. Type **Administrator** as the User ID.
4. Type **abc123** as the password.

   Note: Obtain the correct password from the customer.

To change the Administrator password

1. Log on to the server as Administrator.
2. Press Ctrl+Alt+Delete.
3. Click Change Password.
4. Enter the old password.
5. Enter the new password and confirm it.
6. Click OK.

To continue the installation, go to Chapter 4, “Configuring the server.”

Chapter 4

Configuring the server

In this chapter

Setting communications protocols 54
Reconfiguring the remote access service modem 58
Changing the computer name 61
Recovering from a corrupted CMOS 62
Configuring the BIOS 63
Configuring the Embedded Video Controller 68
Configuring the add-in ELAN Ethernet controller 69
Executing hardware diagnostics 70

Setting communications protocols

To configure TCP/IP information

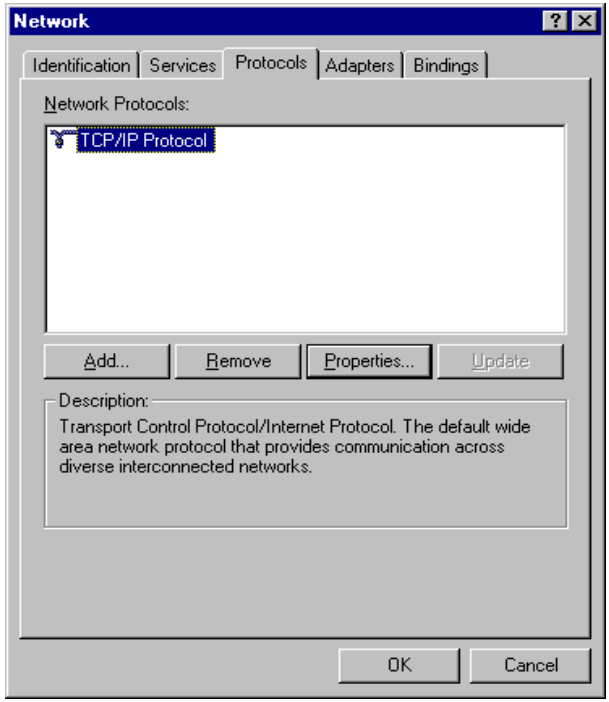
Note: This procedure applies to initial on-site installation only. If the customer installs Windows NT, this procedure does not apply.

1 Start the computer with Windows NT and log on to the server as Administrator.

2 Double-click the Network icon in the Control panel.

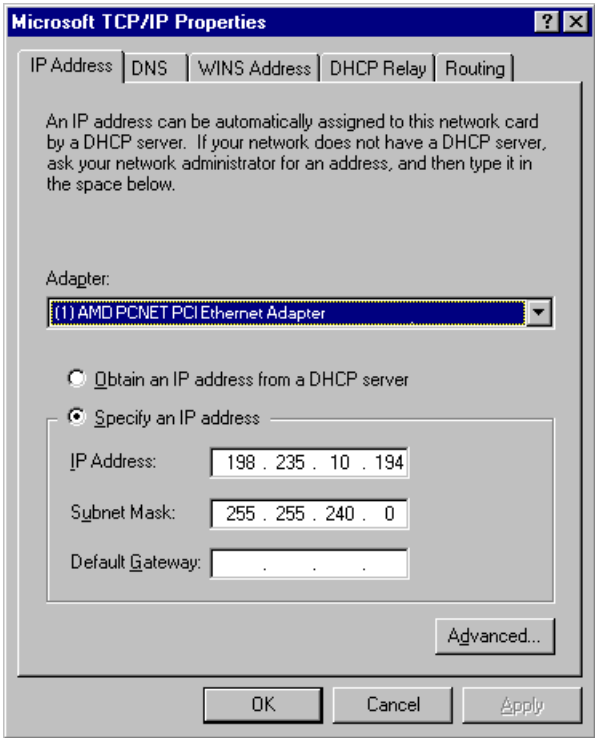
Result: The Network Settings Panel appears.

3 Click the Protocols tab and select TCP/IP protocols from the list of installed network software.



4 Click Properties.

Result: The TCP/IP properties panel appears.


Microsoft TCP/IP Properties
IP Address
DNS
WINS Address
DHCP Relay
Routing
An IP address can be automatically assigned to this network card by a DHCP server. If your network does not have a DHCP server, ask your network administrator for an address, and then type it in the space below.
Adapter:
(1) AMD PCNET PCI Ethernet Adapter
Obtain an IP address from a DHCP server
Specify an IP address
IP Address:
198 . 235 . 10 . 194
Subnet Mask:
255 . 255 . 240 . 0
Default Gateway:
Advanced...
OK
Cancel
Apply

5 For the card with address 1.1.1.1, enter the customer-supplied ELAN address.

6 From the Adapter drop-down list, select the network card ([1] Adapter) with the IP Address 1.1.1.1, and enter the customer-supplied ELAN address.

7 Use the list box labeled Adapter to select the secondary network card if required, and enter the IP information for the displayed network card. This card has been assigned address 2.2.2.2 in the factory.

8 If the server has been provisioned with a CLAN card, use the list box labeled Adapter to select it (it has IP Address 2.2.2.2), and enter the customer-supplied CLAN address.

a. Click on the DNS tab on the Microsoft TCP/IP properties panel to display the DNS properties page.

b. Type the DNS hostname in the Host Name box. This name must match the computer name.

c. Type the customer-supplied DNS domain name in the Domain box.

d. Type the customer-supplied DNS server IP addresses in the DNS Server Search Order box.

e. Click Add.

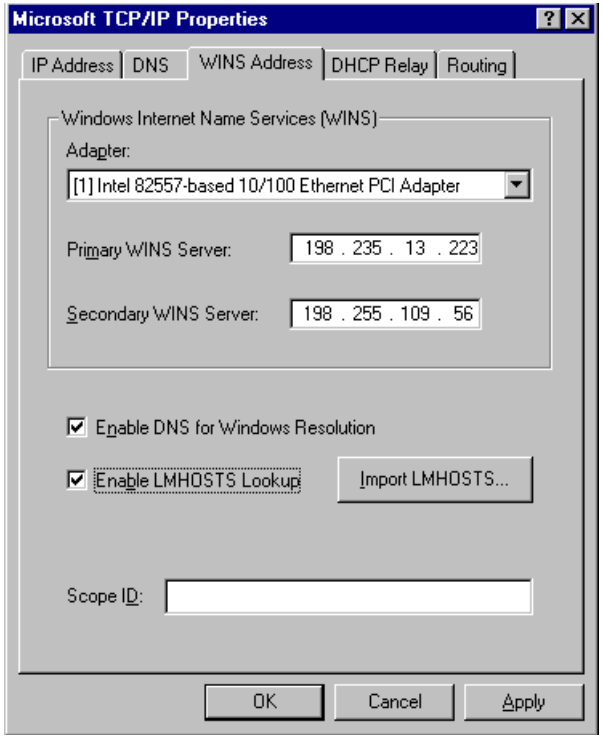
f. Type the customer-supplied DNS suffix names in the DNS Suffix Search Order box.

g. Click Add.

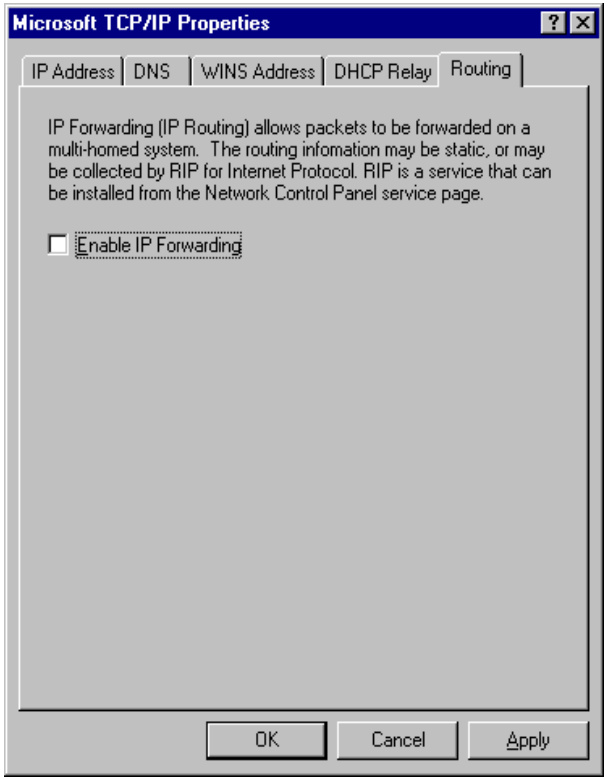
9 Click the WINS Address tab on the Microsoft TCP/IP properties panel to display the WINS Address properties page.

10 Enter the primary and secondary WINS server address for the CLAN network card if required.

11 Check that both DNS for Windows Resolution and LMHOSTS Lookup are enabled.



12 To display the Routing properties page, click the Routing tab on the Microsoft TCP/IP properties panel.


Microsoft TCP/IP Properties
IP Address
DNS
WINS Address
DHCP Relay
Routing
IP Forwarding (IP Routing) allows packets to be forwarded on a multi-homed system. The routing infomation may be static, or may be collected by RIP for Internet Protocol. RIP is a service that can be installed from the Network Control Panel service page.
Enable IP Forwarding
OK
Cancel
Apply

13 Ensure that Enable IP Forwarding is not checked.

Note: This step ensures that IP Routing is disabled.

14 To save the changes, click Apply.

15 To close Microsoft TCP/IP properties panel, click OK.

16 To close the Network Control Panel, click OK.

Note: The server must be shut down before new settings take effect. Shut down the server and restart it.

Reconfiguring the remote access service modem

To reconfigure the remote access service modem

ATTENTION

Perform this procedure only if the modem listed matches the actual modem installed. If the modem listed does not match the modem installed, perform steps 1 to 4 of the procedure "To configure the remote access service modem" on page 128 first and then continue with the steps below.

Note: In a new installation, the server should be preconfigured through step 9 of this procedure.

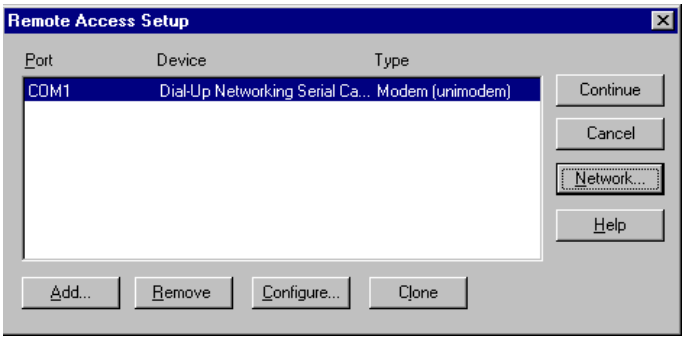
1 Open the network control panel.

2 Click the Services tab.

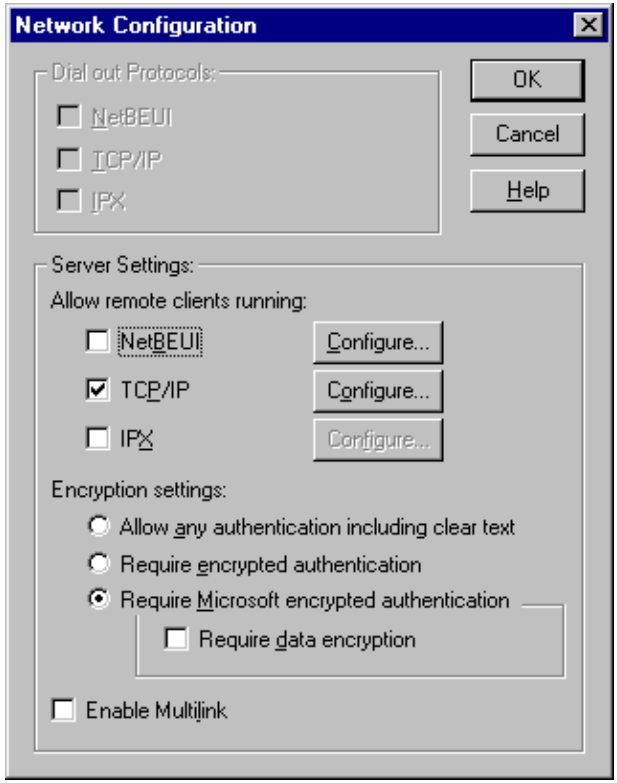
3 Select Remote Access Service and click Properties.

4 Click Network.

Result: The following panel appears:



5 Ensure that your settings are as follows:



6 Click Configure next to NetBEUI.

Result: The RAS Server NetBEUI Configuration dialog box appears.

7 Ensure that This computer only is checked. Click OK.

Result: The Network Configuration dialog box appears.

8 Click Configure next to TCP/IP.

Result: The RAS server TCP/IP Configuration panel appears.

9 Ensure that This computer only is selected.

10 Fill in the Begin and End addresses as supplied by your network administrator.

11 Fill in the From and To addresses to exclude a range of addresses if applicable at this customer's site.

12 Click OK.

Result: The Network Configuration panel appears.

13 Click OK.

Result: The Remote Access Setup panel appears.

14 Click Continue.

Result: The Network Control panel appears.

15 Click Close.

Result: The system prompts you to restart your computer.

16 Click Yes to restart.

Changing the computer name

To change the computer name

Note: You can change the computer name from a dummy name to a proper name during a new installation.

1. Start the computer with Windows NT and log on to the server as Administrator.
2. Open the Network Control Panel.
3. Click Change on the Identification tab.
4. Enter the new computer name and click OK.

   Note: The computer name is case-sensitive. Type the name exactly as you want to see it.
5. After a cautionary prompt that warns of possible problems appears, click Yes to continue.
6. To restart the computer, Click Yes.
7. The computer's DNS name must match the computer's friendly window name. Verify that the name of the computer in the TCP/IP configuration is the same as the main computer name as follows:

   Click Start > Settings > Control Panel > Network.

   You can view the Computer Name.
8. Click the Protocol tab > Properties button > DNS tab.

   You can view the Host Name.

To continue the installation, install the Symposium Call Center Server software. For details, see the *Nortel Networks Symposium Call Center Server Software Installation and Upgrade Guide*.

Recovering from a corrupted CMOS

Some video and other problems are the result of problems in the CMOS configuration on the system board. You can use the Clear config switch on the system board switch package to clear the CMOS contents. When the server is restarted, the default configuration is reloaded from ROM. Follow these steps to erase the CMOS configuration:

1. Turn off the AC power to the server and monitor.
2. Disconnect all external cables and power cords.
3. Remover the cover.
4. Move the Clear config switch 5, located on the system board to ON.
5. Connect the power to the server.
6. Power up the server.

   Result: The CMOS configuration is erased.
7. Power down the server and disconnect the power cord.
8. Move the Clear config switch to OFF.
9. Replace the cover.
10. Connect all external cables and power cords.
11. Power on the server and the monitor.

Note: Nortel Networks recommends that you remove the power cables for at least one minute while the jumpers are set, then re-plug them to completely reset the system settings.

Configuring the BIOS

Configure the BIOS using the following steps:

1. Power up the server.
2. Press F2 to enter the system BIOS.

   Result: The main User Preferences screen appears.
3. Press F9 to load the BIOS defaults.

   Result: A prompt to confirm the action appears.
4. Select Yes and press Enter.

   Result: The User Preference screen appears.
5. Ensure that the Included SCSI_A, Included SCSI_B, and the NetRAID option are enabled.
6. Use the left and right arrow keys to move to the Configuration screen.

   Result: A list of configuration areas appear.
7. Set the options under each area to match the tables below.
8. Use the right and left arrow keys to move to the exit screen.
9. Select Exit Saving Changes and press Enter.

   Result: A prompt to confirm the action appears.
10. Select Yes and press Enter.

    Result: The server restarts.

BIOS option settings

Item	Option	Setting
User Preferences		
	System time	Set current
	System Date	Set current
	Keyboard Click	On

Item	Option	Setting
	Keyboard auto repeat speed	30 per second
	Delay before auto repeat	0.5 second
	Numlock at power on	On
	Integrated HP NetRAID	Enabled
	Included SCSI_A Channel	Yes
	Included SCSI_B Channel	Yes
Security		
Power on Password	Power on Password is	Not set
	Set Power on Password	Press Enter
	Network Server Mode	Disabled
	Keyboard Lock	Disabled
	Video Blanking	Disabled
Hardware Security	Write on Flexible Disks	Enabled
	Start from Flexible Disks	Enabled
	Start from Hard Disk	Enabled
	Start from CDROM	Enabled
Integrated I/O Ports		
Serial Ports	Serial Port A	Enabled / 3F8 / IRQ4
	Serial Port B	Enabled / 2F8 /IRQ3
	Management Port	Disabled
Parallel Port	Parallel Port	Enabled / 378 / IRQ7 / Bi-directional

Item	Option	Setting
Pointing Devices	PS/2 Mouse	Enabled
Flexible Disk Drive		
	Flexible Disk Drive Controller	Enabled
	Flexible Disk Drive A	1.44MB 3.5
Memory Cache		
	Memory Caching	Enabled
	Memory Hole	Disabled
IDE Devices		
Primary Master	Type	Auto
	32 Bit I/O	Disabled
Primary Slave	Type	Auto
	32 Bit I/O	Disabled
	Local Bus IDE Adapter	Enabled
PCI Slot Devices		
PCI Device, Slots 1 through 8	Enable Master	Enabled
	Latency Timer	0040h
PCI IRQ Locking	Routing Algorithm	Smart
	PCI Slot 1	IRQ11
	PCI Slot 2	IRQ10
	PCI Slot 3	IRQ5
	PCI Slot 4	Auto

Item	Option	Setting
	PCI Slot 5	Auto
	PCI Slot 6	Auto
	PCI Slot 7	Auto
	PCI Slot 8	Auto
	Embedded SCSI A	IRQ15
	Embedded SCSI B	IRQ15
	NetRAID	IRQ15
	Sharing Algorithm	Same Device
	Disable PCI IRQ Sharing For	Disabled
ISA non-Plug-and-Play Devices		
Memory Resources	All settings should remain at the default setting unless application engineering specifies otherwise.	
Interrupt Resources	All settings should remain at the default setting unless application engineering specifies otherwise.	
DMA Resources	All settings should remain at the default setting unless application engineering specifies otherwise.	
I/O Resources	All settings should remain at the default setting unless application engineering specifies otherwise.	
Boot Device Ordering		
	Floppy Check	Enabled
	Summary Screen	Enabled

Item	Option	Setting
	Boot Device Priority	1 Flexible Disk 2 CD-ROM 3 Hard Drive 4 Network Boot
	Hard Drive Priority	Leave at default settings: 1 PCI RAID Adapter 2 Potable Cards
Exit		
	Exit saving changes	
	Exit discarding changes	

Configuring the Embedded Video Controller

To install the embedded video controller

1. Insert the driver disk generated from the NTRH8045 LH5 Navigator CD in drive A.
2. In Windows NT 4.0, right-click on the desktop and click Properties.

   Result: The Display Properties window appears.
3. Click the Settings tab.
4. Click Display Type.

   Result: The Display Type window appears.
5. Click Change.

   Result: The Change Display window appears.
6. Click Have Disk.

   Result: The Install from Disk window appears.
7. Ensure Copy manufacturer's files from: textbox points to A, then click OK.
8. Select the shown driver, then click OK.

   Result: The Third Party Driver Warning window appears.
9. Acknowledge the warning by clicking Yes.

   Result: The files are copied and the driver is installed.
10. Click OK.
11. Click Close, then click Close again.
12. Click Yes to restart the compute.

    Result: The changes take effect.

Configuring the add-in ELAN Ethernet controller

To install the ELAN Ethernet network drivers

1. Start the server with Windows NT and log on to the server as Administrator.
2. Open the Network Control Panel.
3. Click the Adapters tab.
4. Click Add.
5. Click Have Disk.... .
6. Insert the driver disk generated from the NTRH8045 LH5 Navigator CD in drive A.
7. Click OK.
8. Select HP NetServer 10/100TX PCI LAN Adapter.
9. Click OK.

   Result: The HPProSet dialog prompt appears.
10. Click Test... to test the card.

    Note: If the cable tests are not connected to the network, they fail.
11. When the tests complete, click OK.
12. Click OK.

    Result: The Intel PROSet window closes.
13. Click Close.

    Result: The Network Control Panel window closes.
14. Enter the TCP/IO information for the card. Ensure that you have the correct card selected by checking the drop-down list labeled Adapter.
15. Click Yes to restart the system.

Executing hardware diagnostics

Introduction

Nortel Networks strongly recommends that prior to installing the operating systems, you check the server for hardware problems.

The 1003t server has its own proprietary diagnostics (HP DiagTools) that can be generated from the HP NetServer Navigator CD-ROM.

ATTENTION

Do not run PC DIAGs on this server as it will not give accurate results.

To run HP DiagTools

1. Generate an HP DiagTools disk from the HP NetServer Navigator CD-ROM.
2. Insert the disk in the floppy drive and restart the server.
3. Perform the diagnostics by following the screen prompts through the process.
4. If no hardware problems are found, continue installing the server. If hardware problems are found, correct each problem by replacing the faulty hardware and run the diagnostics again.

Chapter 5

Setting up the hard drives

In this chapter

Overview	72
Upgrading NetRAID firmware	73
Configuring the RAID system	74
Configuring the optional tape backup drive	78
Partitioning a hard drive	79
Installing MS-DOS 6.20	81
Copying drivers from a CD	83
Creating driver, BIOS, firmware upgrade, and NetRaid Utilities disks	85
Upgrading BIOS and SCSI backplane firmware	87
Installing Windows NT Server 3.51	88
Installing Windows NT Server 4.0	98
Installing the tape device driver	115
Installing NetRAID Assistant	118
Making an emergency repair disk	119

Overview

Introduction

This chapter contains initial installation procedures for setting up a server that has never been configured. These procedures are performed by Nortel Networks before the 1003t server is delivered, and are not part of a normal field installation.

You can use the procedures as recovery procedures in the event of a system failure. Sections in this chapter outline procedures for installing and configuring base software that the server needs to operate. Some procedures are necessary only if all base software must be reinstalled as a failure recovery procedure.

Upgrading NetRAID firmware

Introduction

The server is initially shipped with NetRAID firmware installed and configured. You can use the following procedure for failure recovery, if necessary. The integrated NetRAID controller firmware handles all RAID and SCSI command processing and also supports the following functions:

- The disconnect/reconnect feature optimizes SCSI bus seek.
- Tagged command queuing allows multiple commands to be sent to the controller, thus improving random access.
- Scatter/gather supports multiple address/count pairs.
- The stripe size of each logical drive can be set from 4 kbytes to 128 kbytes.
- Multiple rebuilds and consistency checks have user-definable priority.

When you upgrade the firmware, make sure you upgrade to the latest version. To ensure that you have the latest version, contact your Nortel Networks customer support representative.

For more information on NetRAID, see page 151.

To upgrade the firmware

1. Insert the disk labeled “1003T SCSI Backplane Firmware” in drive A.
2. Restart the server.

   Result: Flashhr automatically upgrades the firmware. When the DOS prompt appears, the upgrade is complete.

Configuring the RAID system

Introduction

The server is initially shipped with the RAID system installed and configured. You can use the following procedure for failure recovery, if necessary. You must configure the RAID system before you install the optional tape backup drive and SCSI.

Drive locations and labels

Raid volume	Physical disks	
	Channel 1	Channel 0
A5	n/a	n/a
A4	n/a	n/a
A3	n/a	n/a
A2	2:1(ID2:Ch1)	2:0(ID2:Ch0)
A1	1:1(ID1:Ch1)	1:0(ID1:Ch0)
A0	0:1(ID0:Ch1)	0:0(ID0:Ch0)

To configure the RAID system

1. Power up the server.

   Result: The NetRAID Adapter messages appears.

2. During the BIOS initialization, when the message `Experienced Users May Press Ctrl M for HP NetRAID Express Tools Now` appears, press Ctrl and M simultaneously.

   Result: The Main NetRAID Management menu appears.

3. Use the arrow keys to highlight Objects, and press Enter.

4. Use the arrow keys to highlight Adapter, and press Enter.

5 Use the arrow keys to highlight Reset Adapter Settings, and press Enter.

Result: You are prompted to confirm the settings.

6 Select Yes.

Result: Settings such as Adapter Speed is set to Ultra2 and Drive Spinup is set to have every two drives spined up after six seconds

7 Use the arrow keys to highlight Configure, and press Enter.

8 Use the arrow keys to highlight Clear Configuration, and press Enter.

Result: The system prompts you to confirm the change.

9 Click Yes and press Enter.

Result: A confirmation message appears. The existing configuration is cleared.

10 Press Enter.

11 Use the arrow keys to highlight New Configuration, and press Enter.

12 Click Yes to proceed.

Result: The RAID adapter scans the SCSI buses to enumerate all SCSI devices.

ATTENTION

If the SCSI backplane is not upgraded, see “Upgrading NetRAID firmware” on page 73. If the firmware has not been upgraded, the drives appear in a different configuration to that shown in “Drive locations and labels” on page 74.

13 At the Array Selection Menu window, for the first RAID volume, highlight the first physical disk (CH0 ID0). Press the space bar.

Result: The channel flashes and displays A0-0.

14 Use the arrow keys to highlight the second physical disk (CH1 ID0). Press the space bar to select it.

Result: The channel flashes and displays A0-1.

15 Press Enter. The channel stops flashing.

Result: The disks consisting of the first volume have been defined.

16 Repeat steps 9 to 11 for the next two pairs of drives. Refer to the drive locations and labels table on the previous page.

17 Once all drives have been defined, press F10 to configure the logical drives.

Result: The Logical Drives Configured window appears.

To configure the logical drives

1 In the Logical Drives Configured window, verify the volume options.

RAID	1
Size	Default size. Do not change.
Advanced Menu	Confirm these settings.

Advanced Menu	
stripesize	64 kbytes
write policy	WRTHRU
read policy	ADAPTIVE
cache policy	cachedIO

Press Esc to return to the Logical Drive window.

Span	No

Click Accept and press Enter.

2 Repeat the same procedure for logical drives 1–3.

Note: Do not go through the Logical Drive menu as this has been accepted already.

3 Once all of the drives have been accepted and the message `Save Configuration?` appears, click Yes.

Result: A confirmation message appears.

4 Press the space bar to continue.

Result: The Configure Menu appears.

5 Press Esc once.

Result: The Main Menu appears.

6 Select Initialize and press Enter.

7 To select all logical drives, press F2.

Result: All drives are highlighted in yellow.

8 To start the initialization process, press F10.

9 A confirmation message appears. Click Yes.

Result: The initialization process starts and takes approximately one minute to complete.

10 When initialization is complete, press any key to continue.

11 Press Esc twice.

12 Confirm Yes to exit.

Configuring the optional tape backup drive

Introduction

The server is initially shipped with the tape backup drive installed and configured, as ordered. You can use the following procedure for failure recovery, if necessary.

If your system includes the optional SCSI tape backup drive and SCSI card, you can now install this hardware and configure the card's BIOS.

Requirements

- SCSI card installed (see "Replacing the SCSI card" on page 187)
- SCSI tape drive installed (see "Installing a drive in the media bay" on page 198)

To temporarily disable the SCSI card BIOS

The PCI SCSI controller is in PCI slot 1 and is used to connect the tape drive. When installing the SCSI card, the memory area used by its BIOS overlaps the memory area used by the RAID controller so they cannot work at the same time, but always alternatively. Therefore, when installing the operating system, fdisk does not recognize the three logical drives created by NetRAID. To proceed with the installation, ensure the BIOS for the SCSI adapter is disabled while partitioning is performed with fdisk.

1. Restart the system. During the BIOS initialization, press CTRL+A when prompted to enter the SCSI Adapter BIOS.
2. In the Advanced setup, disable SCSI Adapter BIOS.
3. Exit the utility and restart.
4. Partition the first logical drive using fdisk utility (see "Partitioning a hard drive" on page 79).

Note: Enable the SCSI card BIOS once partitioning is complete.

Partitioning a hard drive

Introduction

The server is initially shipped with hard drives installed and configured. You can use the following procedure for failure recovery, if necessary. If you reinstalled your server's hard drive, you must partition the drive before installing MS-DOS 6.20 and Windows NT.

Requirements

- installation media for MS-DOS v6.20 (three disks)
- installation media for Windows NT server v4.0 (three disks and one CD-ROM)

Note: If a SCSI tape backup is installed, you must disable or remove it before you partition the hard drive.

To partition a new hard drive

1. Insert the MS-DOS 6.20 Install Disk 1 into drive A and restart the server.
2. Press F3 twice to exit the Setup program.
3. At the A: prompt, type **fdisk** to start the disk partitioning utility.
4. At the main menu, type **1** (Create DOS Partition or Logical DOS Drive) and press Enter.
5. Type **1** again (Create Primary DOS Partition), and press Enter .
6. At the prompt `Do you wish to use the maximum available size...`, type **N** and press Enter.
7. At the prompt `Enter partition size...`, type **2047** to configure 2 Gbytes for drive C and press Esc.
8. Select menu item 2 (Set Active Partition) to set the configured 2047 Mbytes DOS partition (1) to active, and then press Esc.
9. Press Esc to exit fdisk.
10. Press any key to restart the server.

To enable the SCSI card BIOS

The PCI SCSI controller is in PCI slot 1 and is used to connect the tape drive. When installing the SCSI card, the memory area used by its BIOS overlaps the memory area used by the RAID controller so they cannot work at the same time, but always alternatively. Therefore, when installing the operating system, fdisk does not recognize the three logical drives created by NetRAID. To proceed with the installation, ensure the BIOS for the SCSI adapter is disabled while partitioning is performed with fdisk.

1. Restart the system. During the BIOS initialization, press CTRL+A when prompted to enter the SCSI Adapter BIOS.
2. In the Advanced setup, enable SCSI Adapter BIOS.
3. Exit the utility and restart.

Installing MS-DOS 6.20

Introduction

The server is initially shipped with DOS installed and configured. You can use the following procedure for failure recovery, if necessary. Perform this procedure immediately after creating a 2048 Mbyte partition with fdisk.

To reinstall MS-DOS 6.20

1 Insert the disk labeled MS-DOS Install Disk 1 into drive A, and restart the system.

Result: A message indicates that the system is starting MS-DOS. The MS-DOS 6.20 setup menu appears.

CAUTION

Risk of equipment damage

Do *not* enable the MS-DOS DoubleSpace disk compression feature.

2 Press Enter at the Welcome window.

Result: The system prompts you to configure unallocated disk space.

3 Use the arrow keys to select the option `Do not configure unallocated disk space`, and press Enter.

Result: You are prompted with common system settings. Hard disk drive C is not formatted.

4 Select Format this drive.

Result: Drive C is formatted, which takes several minutes. The system then prompts you for the path to install DOS.

5 To accept the default path C:\DOS, press Enter.

Result: Setup starts copying files. The system prompts you to insert Disk 2.

6 Insert MS-DOS Setup Disk 2, and press Enter.

Result: Setup continues copying files. The system prompts you to insert Disk 3.

7 Insert MS-DOS Setup Disk 3, and press Enter to finish setup.

Result: Setup finishes copying files.

8 Remove Setup Disk 3 when prompted, and press Enter.

Result: The system confirms that the operating system was installed.

9 To restart the computer with MS-DOS, press Enter.

Result: The computer starts to a clean MS-DOS installation.

To complete the installation, you must perform one of the following procedures:

- "Copying drivers from a CD" on page 83
- "Installing Windows NT Server 3.51" on page 88
- "Installing Windows NT Server 4.0" on page 98

Copying drivers from a CD

Introduction

The network drivers that you need to install during the Windows NT installation are provided on the Application Server Driver CD that is supplied with SCCS. To make some drivers functional, you must copy them to disks and label them accordingly.

Requirements

- Application Server Driver CD
- blank disks

Disks you must create

You must copy several drivers from the Application Server Driver CD to disk before starting the Windows NT installation. You are prompted during the installation to insert the driver disk when appropriate.

Label	Contents
NTRH8003 PCI RAID driver	Mylex RAID Driver
NTRH8023 SCSI driver	Symbios SCSI Driver
NTRH8013 PCI Ethernet drivers	Intel Ethernet NIC Driver

To copy drivers to disk

1. Power up the server.
2. Insert the Application Server Driver CD into the CD-ROM drive.

   Result: The CD starts a DOS session. After a few minutes, the MS-DOS 6.2 Startup Menu appears.
3. Select the appropriate platform type and press Enter.

Result: The platform menu appears.

4 Select the appropriate option, depending upon the driver you want to copy.

Result: The system responds with the following message: `Please insert a floppy into drive A. Press any key to continue.... .`

5 Insert a disk into the floppy drive and press any key.

Result: You are asked if you want to format the disk. Type **N** if the disk is blank or **Y** if the disk contains unwanted data.

If you select **Y**, DOS performs a quick format of the disk and alerts you when the format is complete.

6 The drivers are then copied to disk. When the copying is complete, the following message appears: `Diskettes successfully completed`.

Some drivers require more than one disk. After DOS has finished copying drivers to Disk 1, it displays the following message: `[x] files copied`. You are prompted to insert a blank disk into drive A. Repeat step 5 for each subsequent disk.

7 Repeat steps 4 to 6 for each driver you want to copy.

8 Nortel Networks recommends that you label the disks with the name specified in “Disks you must create” on page 83.

Creating driver, BIOS, firmware upgrade, and NetRaid Utilities disks

Introduction

Create the driver, BIOS, NetRAID Firmware Upgrade and NetRAID Assistant disk before installing anything on the 1003t server. Failure to do so at this point will result in failure. If you do not create the disks, you cannot complete the overall software installation of the 1003t server.

ATTENTION

The SCSI Backplane Firmware Update Diskette is provided by Nortel Networks. Do not create this disk from the LH4 Navigator CD as this can result in invalid SCSI ID configuration on the secondary SCSI backplane.

To create the disks

1. Insert the HP LH4 Navigator CD in the CD-ROM drive.
2. Power up the server.

   Result: The system boots from the CD and presents menus instructing you to create either a specific driver BIOS or an Integrated NetRAID firmware disk.

   Note: If the system does not boot from the CD, ensure that the BIOS settings are specified according to “Configuring the BIOS” on page 63.

   Label disks as follows:

   - 1003T BIOS (create from BIOS Update Diskette LH4)
   - 1003t Integrated NetRAID firmware (create from Integrated HP NetRAID Firmware update-LH4)
   - Windows NT OS drivers (create from NOS Drivers Windows NT 4.0/NT 4.0 Cluster -LH4 or from NOS Drivers Windows NT 3.51-LH4). This set of two disks includes drivers for RAID, Video, Network card, and SCSI controller.

- NetRAID Assistant Diskettes (create from NetRAID Assistant for Windows NT and Windows 95)

3 Exit the utility.

4 Restart the server.

Proceed with “Upgrading BIOS and SCSI backplane firmware” on page 87.

Upgrading BIOS and SCSI backplane firmware

Introduction

This section provides procedures on upgrading to later versions of the BIOS and SCSI backplane.

When installing the secondary SCSI drive bay, the firmware for the SCSI backplane might need to be upgraded to reflect a correct SCSI ID configuration as indicated in “Configuring the RAID system” on page 74.

To upgrade the BIOS

1. Insert the disk labeled 1003t BIOS into drive A.
2. Reboot the server.

   Result: The BIOS is automatically updated.
3. Reboot the server.

   Result: The changes take effect.

To upgrade the SCSI backplane

1. Insert the disk labeled NTRH8046, 1003t Secondary SCSI Backplane firmware into drive A.
2. Reboot the system.

   Result: The floppy contains an auto executable file which performs the SCSI backplane firmware upgrade automatically.
3. Reboot the server.

   Result: The changes take effect.

Proceed with “Installing Windows NT Server 3.51” on page 88 or “Installing Windows NT Server 4.0” on page 98.

Installing Windows NT Server 3.51

Introduction

The server can use an older version of Windows NT if necessary. You can install the Windows NT Server 3.51 after completing the MS-DOS installation. To install the Windows NT Server 4.0, see “Installing Windows NT Server 4.0” on page 98.

ATTENTION

Before proceeding with this installation, create the driver, BIOS, NetRAID Firmware Upgrade, and NetRAID Assistant disk. If you do not create these disks, the software installation of the 1003t server cannot be completed. To perform this task, follow the procedures in “Creating driver, BIOS, firmware upgrade, and NetRaid Utilities disks” on page 85.

Requirements

- Symposium Call Center Server Operating System (one CD-ROM, three disks)

To install the Windows NT Server 3.51 operating system

1. Insert the Windows NT Setup Disk 1, and restart the computer.
2. Insert the Windows NT Setup Disk 2 when prompted, and press Enter.

   Result: Setup loads files from Disk 2 and displays the Windows NT Setup window.
3. To begin installation of Windows NT, press Enter when prompted.
4. To specify Custom setup, type **C**.
5. Type **S** to skip the mass storage controller detection.
6. Type **S** to select a controller.

   Result: A list of controllers appears.

   Note: Skip to Step 10 if the platform is configured with a SCSI CD-ROM.

7 Select the item titled IDE CD-ROM (ATAPI 1.2)/Dual-channel PCI IDE, and press Enter.

Result: This loads the IDE CD-ROM driver.

8 Insert the Windows NT Setup Disk 3 when prompted.

9 Type **S** to select another disk controller.

Result: A list of controllers appears.

10 Select Other (requires a disk provided by a hardware manufacturer), and press Enter.

11 Insert the manufacturer-supplied hardware support disk, and press Enter.

Result: The system prompts you to select the correct driver for the installed hardware.

12 Highlight the appropriate SCSI driver for the platform and operating system version, and press Enter.

Result: The SCSI driver is loaded from the disk. This takes approximately one minute.

13 To continue with the setup, press Enter.

14 When prompted, insert the Windows NT Setup Disk 3, and press Enter.

15 Press Enter to select To install Windows NT from CD-ROM.

Result: The list of installed hardware components appears.

16 To select The above list matches my computer, press Enter.

Result: The Windows NT disk partitioning window appears.

17 Highlight the Unpartitioned space on the primary hard drive (Disk 0).

Note: There is already a 2047 Mbyte FAT partition on the disk.

18 Use the arrow keys to select Format the partition using the NTFS file system. Press Enter.

Note: Setup formats the new partition and takes approximately one minute. The system prompts you for the installation path.

19 To accept the default installation path (\WINNT35), press Enter.

Result: The setup prompts you to perform a comprehensive disk check.

20 To perform the comprehensive disk check, press Enter.

Result: The system prompts you for the Windows NT Server CD-ROM.

21 Insert the Windows NT Server CD-ROM, and press Enter.

Result: Setup checks the hard drives. The system prompts you for the manufacturer-supplied SCSI driver disk.

22 Insert the manufacturer-supplied SCSI driver disk, and press Enter.

Result: Installation files are copied to the hard drive. The system prompts you to restart the system.

23 Remove the Windows NT Server CD-ROM from the CD-ROM drive, remove the manufacturer-supplied SCSI driver disk from the floppy drive, and press Enter.

Result: The system restarts and begins the graphical portion of Windows NT setup.

To continue the installation, you must perform "To configure Windows NT 3.51 for network use" below.

To configure Windows NT 3.51 for network use

1 At the Windows NT Setup dialog box, enter the name (for example, **Nortel**), and the company (for example, **Nortel Networks**), then click Continue to proceed.

2 If the information you entered is correct, click Continue to proceed; otherwise, click Change to reenter the information.

3 Enter the Product ID, and click Continue. If you make a mistake, click Change to reenter the information, and then click Continue.

4 Select Server and click Continue.

5 Select Per server, and specify 5 as the number of concurrent connections. Click Continue.

6 Select the check box labeled I agree to accept the client licensing choice, and click OK.

7 Enter the computer name, and click Next.

Note: Obtain this information from your network administrator.

8 If the information you entered is correct, click Continue; otherwise, click Change to reenter the information.

9 Select English (United States) from the drop-down list for the language/ locale of the platform, and then click Continue.

10 Ensure the check boxes for the optional setup tasks are in the following state:

- Set Up Only Windows Components You Select: Checked
- Set Up Network: Checked
- Set Up Printers (locally connected printers only): Unchecked
- Set Up Applications on the hard drive(s): Checked

11 Click Continue.

12 Ensure the check boxes for the optional Windows components are in the following state:

- Read-Me Files: Unchecked
- Accessories: Checked
- Games: Unchecked
- Screen Savers: Unchecked
- Wallpapers, Misc.: Unchecked

13 Click Continue.

Result: Windows NT Setup starts the network configuration.

14 To pick a network card manually, click Continue.

15 Select <Other> Required disk from manufacturer from the drop-down list of network cards.

16 If there is a CLAN, set up the CLAN network card as outlined in the substeps below:

a. Insert the CLAN network card driver disk in the floppy drive, and click OK to continue. Specify the path, if other than A:\.

b. Select the network card driver that describes the installed network adapter, and click OK to accept the selection.

c. Insert the Windows NT 3.51 Server CD-ROM in the CD-ROM drive. Click OK.

Result: Files are copied to the system. The system might prompt you with a dialog box indicating the network card driver was successfully loaded, and offer you a chance to run diagnostics.

d. Select <Other> Required disk from manufacturer from the drop-down list of network cards.

17 Insert the ELAN network card driver disk (Intel 82557 Fast Ethernet) that is shipped with the system.

18 Use the default path on the screen, A:\, and press Enter.

19 Select the ELAN driver (HP 10/100 Ethernet PCI Adapter), and then click OK.

If a message appears indicating that the network card is already installed, click OK to continue.

Result: The adapter information dialog box appears.

20 To test the adapter, click Test.

Result: The Network settings dialog box appears.

21 To continue with Windows NT Setup, click OK.

Note: You can run diagnostics at this point and continue the setup procedure when the diagnostics are complete.

22 Ensure the network protocols check boxes are in the following state, and then click Continue:

- NWLink IPX/SPX Compatible Transport: Unchecked
- TCP/IP Transport: Checked
- NetBEUI Transport: Checked

23 Ensure the optional TCP/IP components check boxes are in the following state, and then click Continue:

- Connectivity Utilities: Checked
- SNMP Service: Checked
- TCP/IP Network Printing Support: Checked
- FTP Server Service: Unchecked
- Simple TCP/IP Services: Checked
- DHCP Server Service: Unchecked
- WINS Server: Unchecked
- Enable Automatic DHCP Configuration: Unchecked

Result: The system prompts you to configure the SNMP service. As the SNMP service is only being added to provide additional Performance Monitor counters, no configuration is necessary.

24 To accept the default SNMP Configuration, click OK.

25 To accept the network configuration, click OK.

26 For each network card (ELAN and CLAN, if applicable), enter the TCP/IP configuration parameters for the following values, which are obtained from the network administrator:

- DNS host name (as in step 7 on page 90)
- IP Address
- Subnet Mask
- Default Gateway
- Primary WINS Server

27 Click OK to continue.

Result: The TCP/IP settings are set, which takes approximately one minute, followed by the appearance of the Domain/Workgroup Settings dialog box.

28 Enter the workgroup name, provided by the network administrator, and then click OK to continue.

Result: Windows NT Setup creates the program manager icons.

Note: The computer *must not* belong to a Windows NT domain.

29 Enter the Administrator account password for the MAS server:

- Password: **<as specified>**
- Confirm Password: **<as specified>**

Note: Passwords are case-sensitive. Ensure Caps Lock is not left on accidentally.

30 Click OK to continue.

31 To avoid setting up additional Windows NT accounts, click Cancel.

32 To accept the message that no local account will be set up, Click OK.

33 To accept the default values provided by Windows NT for configuring virtual memory for the server, click Continue.

34 To search the path for preinstalled applications for which Windows NT will create icons, Click Search Now.

35 Select None of the Above from the displayed list of prompts for the file C:\DOS\EDIT.COM, and then click Continue.

36 Select MS-DOS Editor from the displayed list of prompts for the file D:\WINNT35\system32\EDIT.COM, and then click Continue.

37 To skip creating icons for other programs, click Continue.

38 Enter the correct date and time.

39 Select the time zone (for example, GMT 05:00) Eastern Time (U.S. and Canada).

40 Ensure that Automatically adjust clock for daylight saving changes is checked.

41 Click OK to continue.

Result: Windows NT Setup detects the installed display adapter.

42 To accept the detected display adapter, click OK.

Result: The system prompts you to configure the display adapter.

43 Ensure the following values have been selected:

- Color Palette: 256 colors
- Desktop Area: 800x600
- Font Size: Small Fonts
- Refresh Frequency: 60 Hertz (or default)

44 To test the settings, click Test.

Result: The testing mode dialog box appears.

45 Click OK.

Result: A test screen appears. After five seconds, the system prompts you to verify that the colors and images on screen match the text. The message `Did you see the test bitmap properly?` appears.

46 To verify that you saw the test screen, click Yes.

47 To save the display settings you just tested and to continue, click OK.

48 To close the Display Properties property page, click OK.

Result: Setup copies the remaining files from the CD-ROM and saves the configuration.

49 If you want to create an Emergency Repair Disk, click Yes.

Note: You need to update this disk using the RDisk.exe utility after the platform installation has been finalized and before the system goes into service.

50 Remove any disk from drive A when you are prompted to restart the server.

51 Remove the Windows NT CD-ROM from the CD-ROM drive.

52 Click Restart Computer.

Result: The system restarts to Windows NT.

To continue the installation, you must perform "To format the remaining disk space" below.

To format the remaining disk space

1 Press Ctrl-Alt-Delete to display the Windows NT logon box.

2 Log on to the system as Administrator.

3 Open the Administrative Tools program group.

4 Double-click the Disk Administrator icon.

Result: The Disk Administrator advises you that this is the first time this program has been run.

5 To acknowledge the message, click OK.

6 Click Yes to each of the following requests to write a signature to each hard drive.

Result: When a signature has been written to all disks, the main program screen appears.

Each disk has a number (Disk 0, Disk 1, and so on). Disk 0 has two partitions — a 2047 Mbyte FAT partition and an NTFS partition that uses 4095 Mbytes of Disk 0. Each remaining disk should be listed as Free Space.

7 Point and click to select the Free Space on one of the remaining disks (for example, Disk 1).

Result: The Disk Administrator highlights the free space with a thick black border and prompts for confirmation.

8 Click Yes to continue.

9 Select Create Extended under the Partition menu.

Result: The system prompts for the size of the extended partition.

10 Accept or enter the maximum size of the partition, which is the whole disk.

11 Point and click to select the Free Space on the same disk again.

Result: The Disk Administrator highlights the free space with a thick black border.

12 Select Create under the Partition menu.

Result: The system prompts you for the size of the logical drive (whole disk).

13 Create two partitions on the logical disk by creating two logical drives of 4096 Mbytes each.

14 To create the logical drives, click OK.

15 Select Commit Changes Now under the Partition menu.

Result: The system prompts you to confirm your changes.

16 To commit the changes to disk, click Yes.

Result: The system prompts you to update your Emergency Repair Disk.

17 Click OK to proceed.

18 Select the newly created partition on the Disk Administrator program window.

19 Select Format under the Tools menu.

20 Select NTFS as the File system, and check the box labeled Quick Format. Click OK.

21 To confirm the format and to continue, click Yes.

Result: Windows NT formats the disk. A message box with the format summary information appears when the format is complete.

22 After viewing the disk format summary information, click OK.

Result: The Disk Administrator program window appears.

Repeat Steps 7 to 20 to format the remaining drives on the server platform (that is, G:, H:, I:).

Installing Windows NT 3.51 Server Service Pack 5

Perform this procedure immediately after installing Windows NT 3.51. Install Service Pack 5 from the Meridian Application Server Operating System CD-ROM. The service pack is in subdirectory sp5. The procedure that follows is applicable only if you are installing from subdirectory sp5 on the Meridian Application Server Operating System CD-ROM.

Requirements

- Symposium Call Center Server Operating System CD-ROM
- 1003t server with Windows NT 3.5.1 server installed

To install the service pack

1 Insert the CD-ROM in the CD-ROM drive.

2 Use File Manager to select the directory named sp5.

3 Locate the Update.exe file and double-click to run it.

Result: A welcome window appears.

4 Click Next.

Result: The license agreement appears.

5 To accept the license agreement, Click Yes.

6 To install the service pack, click Next.

7 To finish installing the service pack, click Finish.

Result: The program examines the system, selects the files to copy, and then copies them.

8 As the files are installed, the message `The target file exists and is newer than the source. Overwrite the newer file?` appears. Click No.

Result: Windows NT 3.51 is updated with Service Pack 5.

To complete the installation, you must perform “Installing the tape device driver” on page 115.

Installing Windows NT Server 4.0

Introduction

The server is initially shipped with Windows NT 4.0 installed and configured. You can use the following procedure for failure recovery, if necessary. Install Windows NT 4.0 server after completing the MS-DOS installation.

ATTENTION

Before proceeding with this installation, create the driver, BIOS, NetRAID Firmware Upgrade, and NetRAID Assistant disks. If you do not create these disks, the software installation of the 1003t server cannot be completed. To perform this task, follow the procedures in "Creating driver, BIOS, firmware upgrade, and NetRaid Utilities disks" on page 85.

Requirements

- a prepared system with MS-DOS installed in a 2047 Mbyte FAT partition. Power is off.
- Windows NT 4.0 installation media
- relevant device driver disk. This depends on the make, manufacturer, and type of cards installed.

Note: All relevant disks for your platform are shipped with your server.

- customer details, such as name, company name, administrative account password

To install the Windows NT 4.0 server operating system

1 Insert the Windows NT 4.0 Setup Disk 1 into drive A and power up the computer.

Result: The system starts, the disk loads, and the system prompts for Setup Disk 2.

2 Insert the Windows NT Setup Disk 2 and press Enter.

Result: Setup loads files from Disk 2. The Windows NT Setup window appears.

3 Press Enter when prompted to begin installation of Windows NT.

Result: The system prompts you to select automatic or manual detection of mass storage devices in the server.

4 Type **S** to specify manual detection.

Result: The system prompts you to select the mass storage controllers.

5 Type **S** to select a disk controller.

Result: A list of controllers appears.

ATTENTION

Since the default Windows NT SCSI drivers are not supported, using them might cause system errors.

6 Use the arrow keys to scroll through the list and highlight Other (requires disk provided by the hardware manufacturer). Press Enter.

Result: The system prompts you to insert the manufacturer-supplied hardware support disk into drive A.

7 Remove the Windows NT 4.0 setup disk from drive A, and insert the RAID controller disk. Press Enter.

8 Highlight the driver listed that matches your RAID card and press Enter.

To format a SCSI back tape drive

9 If you have a SCSI backup tape drive, repeat steps 5 to 8.

To set up the CD-ROM driver

10 Type **S** to select the IDE CD-ROM driver.

11 Use the arrow keys to select IDE CD-ROM (ATAPI 1.2) PCI IDE Controller.

12 When prompted, remove the driver disk from drive A and insert Windows NT Setup Disk 3. Press Enter.

Result: This loads the IDE CD-ROM driver.

13 To continue with Windows NT setup, press Enter.

Result: The system loads files and prompts you to insert the Windows NT Server CD-ROM into the CD-ROM drive.

14 Insert the CD-ROM and press Enter to install Windows NT.

Result: The licensing agreement appears.

15 Use the Page Down key to scroll down to the end of the text. Press F8 to agree with the licensing agreement.

Result: A list of installed hardware components appears.

To format the hard drive

1 From the list of installed hardware components, verify that the devices match your computer. Highlight the above list matches my computer, and press Enter.

Result: The Windows NT disk partitioning window appears.

2 To format the 9 Gbyte primary hard drive, highlight the unpartitioned space on the primary hard drive (Disk 0).

Result: The system prompts you to select the format type NTFS or FAT.

3 Use the arrow keys to select Format the partition using the NTFS file system, and press Enter.

Result: Setup formats the new partition.

4 To install the formatted drive, press Enter to select the default directory for installing Windows NT, which is \WINNT.

Result: The system prompts you to perform a comprehensive disk check.

5 To perform a comprehensive disk check, press Enter.

Result: The hard drives are examined. The system prompts you to insert the manufacturer-supplied RAID controller driver disk into drive A to copy the driver(s) to the hard drive.

6 Remove the Windows NT 4.0 setup disk from drive A.

7 Insert the manufacturer-supplied RAID controller driver disk. Press Enter.

Result: Setup copies files to the hard drive. The system prompts you to restart the computer.

8 Remove the SCSI driver disk from drive A and the CD-ROM from the CD-ROM drive. Press Enter.

Result: The system often restarts more than once before launching the Windows NT graphical interface. The system prompts you to insert the CD-ROM.

9 Insert the Windows NT 4.0 CD-ROM in the CD-ROM drive.

Note: The system might prompt you to click OK for the system to locate files on the CD-ROM.

Click OK.

Result: Files are copied to the system. The next three parts of setup are displayed on the window.

10 Click Next to continue.

Result: The system prompts you to enter the name and company name.

Note: The customer should supply the name and company name to be entered.

11 Enter the data requested (name and company name), and click Next.

Result: The system prompts you to enter the CD-Key.

12 Enter the assigned product identification in the space provided, and click Next.

Result: The system prompts you to select the Windows NT 4.0 licensing mode.

13 Under the licensing mode window, select Per server and specify 5 as the number of concurrent connections. Click Next.

Result: The system prompts you to enter the computer name.

14 Enter the computer name.

Note: Obtain this information from the customer or the network administrator.

Click Next.

Result: The system prompts you to select the server's role or type.

15 Ensure that the radio button for Stand-Alone Server is selected.

ATTENTION If any other option is chosen at this step, repeat the procedure from the beginning.

Click Next.

Result: The system prompts you to enter the password for the Administrator account.

16 Enter the Administrator account password and confirm it. The customer's network administrator must supply the password.

Note: Passwords are case-sensitive. Ensure that the Caps Lock key on the keyboard is not on.

Click Next.

Result: The system prompts you to create an Emergency Repair Disk.

17 Ensure that No, Do not create an emergency repair disk is selected. Click Next.

Result: The system prompts you to select the optional Windows components to be installed.

18 To install the default accessories for Windows NT, click Next.

Result: The system prompts you to begin the setup of Windows NT networking.

19 To install Windows NT networking, click Next.

Result: The system prompts you to select how Windows NT participates on the network.

To configure the server for network use

1 Click This computer will participate on a network. Ensure that Wired to the network and Remote access to the network are checked. Click Next.

Result: The system prompts you to install the Internet Information Server.

2 Deselect the Install Microsoft Internet Information server option by clearing the check box. Click Next.

Result: The system prompts you to install the network card drivers.

3 Click Select from List to select the ELAN network card driver from the disk in drive A.

Result: The system prompts you to select a network adapter from a list.

4 To load the ELAN network card driver from the disk in drive A, click Have Disk.

Result: The system prompts you to insert the network card driver disk for the ELAN card into drive A.

5 Insert the ELAN network card driver disk into drive A and click OK. If the path is not A, you must specify the path. For example, some drivers reside in A:\winnt\.

Result: The system prompts you to select the appropriate network card driver from a list.

6 Click the network card driver that appropriately describes the installed network adapter. Click OK.

Result: The Network Adapter setup window appears. The driver you loaded from the disk should be listed and checked.

Note: The ELAN driver is installed. Continue with installing a CLAN driver if it has been installed.

7 If there is a CLAN, set up the CLAN network card as outlined in the substeps below:

a. To select the CLAN network card driver from the disk in drive A, click Select from List.

Result: The system prompts you to select a network adapter from a list.

b. To load the CLAN network card driver from the disk in drive A, click Have Disk.

Result: The system prompts you to insert the network card driver disk for the CLAN card into drive A.

c. Insert the CLAN network card driver disk into drive A and click OK. If the path is not A, specify the path.

Result: The system prompts you to select the appropriate network card driver from a list.

d. Click the network card driver that appropriately describes the installed network adapter, and click OK.

Result: The Network Adapter setup window appears. The driver you loaded from the disk should be listed and checked.

Note: Ensure that both the ELAN card and the CLAN card are listed and checked.

8 Click Next to continue.

Result: The system prompts you to select the network protocols to install.

9 Ensure that the check boxes are in the following state:

a. TCP/IP Protocol: Checked

b. NetBEUI Protocol: Checked

c. NWLink IPX/SPX Compatible Transport: Unchecked

10 Click Next to continue.

Result: The system prompts you to select the network services to be installed.

11 From the Network Services window, click Select from List.

Result: A list of network services appears.

12 Use the arrow keys to scroll to SNMP Service in the Network Service dialog box. Click OK.

Result: The network services Installation window appears.

13 To add additional network services, click Select from List.

Result: A list of network services appears.

14 Scroll to Microsoft TCP/IP Printing and click OK.

Result: The Network Services Installation window appears.

15 To add additional network services, click Select from List.

Result: A list of Network Services appears.

16 Scroll to Remote Access Service and click OK.

Result: The Network Services Installation window appears.

17 Click Next to continue.

Result: The system prompts you to confirm the installation of network components.

18 To install the selected networking components, click Next.

Result: The files are copied to the system.

Note: At this point, the system might prompt you to test the card. Follow the on-screen instructions to perform the test. The setup message `A network card of this type is already installed in the system, do you want to continue`? might appear. Click OK. The message appears when both the ELAN and CLAN cards are of the same make/model/manufacturer. Click OK to complete the tests. Click OK to continue with the installation process.

19 The option Use DHCP to configure the Network appears. Click No.

Result: The Remote Access Setup window displays the following message: `There are no RAS capable devices to Add. Do you want RAS setup to invoke the Modem Installer to enable you to add a modem`?

20 To invoke the Modem Installer, click Yes.

Result: The Install New Modem window appears.

21 Check the box Don't detect my modem, I will select it from a list. Click Next.

Result: Manufacturers and models appear in the Install New Modem window.

22 Select the appropriate manufacturer, and then select the model.

Note: If the manufacturer and model are not listed, select Standard Modem types as the Manufacturer and Standard 28800 bps Modem as the Model.

ATTENTION

If your modem is not listed and you have the manufacturer's installation disk, then click Have disk and follow the instructions on the window.

23 Click Next on the Install New Modem window showing manufacturers and models.

Result: The Port Selection window appears.

24 Ensure that Selected ports is checked, and then click COM1.

25 Click Next.

Result: The Location Information window appears.

26 Select the appropriate country, area code, and dialing information, and click Next.

Result: The message `Your modem has been set up successfully` appears.

Note: The information entered at this step can be changed later by double-clicking the Modems icon in Control Panel, selecting this modem, and then clicking Properties.

27 To complete the installation, click Finish.

Result: The Add RAS device window appears.

Click OK.

Result: The window closes and the RAS window appears.

28 Click Configure.

Result: The Configure Port usage window appears.

29 Ensure that Dial Out and Receive Calls is selected. Click OK.

30 At the RAS window, click Network.

Result: The Network Configuration window appears.

31 For Dial out Protocols, check TCP/IP. For Server Settings, check TCP/IP.

32 At the Network Configuration window, click Configure beside TCP/IP in Server Settings.

Result: The RAS TCP/IP Configuration window appears.

33 Under Allow remote TCP/IP clients to access, select This computer only.

34 Select Use static address pool. Enter Begin and End addresses, From and To addresses, and any excluded ranges.

Note: The customer must provide these addresses.

35 To complete the configuration, click OK.

Result: The Network Configuration window appears.

36 To close the Network Configuration window, click OK.

Result: The RAS window appears.

37 Click Continue.

Result: The system prompts you to configure the SNMP service.

38 To accept the default SNMP configuration, click OK.

Note: SNMP is installed only for performance monitor counters.

Result: Files are copied to the system. The system prompts you to enter the TCP/IP parameters.

39 Enter the values for IP Address, Subnet Mask, Default Gateway, and Primary WINS Server that the customer's network administrator provides. Click OK.

Result: The Windows NT Server Setup window showing bindings appears.

40 Ensure that All Services is selected.

41 Configure the binding order so that the CLAN comes first, followed by the ELAN card, and then the Virtual Adapters for RAS.

a. Click the plus (+) sign located next to each service to display the protocols beneath that service.

b. Click the plus (+) sign located next to the protocols to display the adapters.

c. Click the up and down arrow buttons to arrange the binding order. Click Next.

42 To start the network, click Next.

ATTENTION The computer must not belong to a Windows NT domain.

Note: The name of the workgroup must be supplied by your network administrator.

43 To add the computer to the workgroup, click Next.

Result: Windows NT prepares to complete setup.

44 Click Finish to proceed.

Result: The system prompts you for date/time configuration settings.

45 Enter the correct date, time, and time zone. Ensure that Automatically adjust clock for daylight saving changes is checked.

46 Click Close.

Result: Windows NT Setup detects the installed display adapter.

47 To accept the display adapter Windows NT has detected, click OK.

Result: The system prompts you to configure the display adapter.

48 Ensure that the following values have been selected:

- Color Palette: 16 Colors
- Desktop Area: 800x600
- Font Size: Small Fonts
- Refresh Frequency: 60 Hertz (or default)

Note: You must test these settings before you can proceed in the Windows NT setup.

49 To start the test, click Test.

Result: The system prompts you to continue with the test.

50 To proceed with the display settings test, click OK.

Result: A test screen appears. After five seconds, the system prompts you to select whether you saw the bitmap properly.

51 Click Yes.

Result: The system prompts you to save the display settings.

52 To save the tested display settings, click OK.

Result: The Display Settings Configuration window appears.

53 To finalize the display settings and continue with Windows NT setup, click OK.

Result: Files are copied to the system. Windows NT Setup sets security on system files and saves the system configuration.

54 Remove the CD-ROM from the CD-ROM drive and the disk from drive A.

55 To complete Setup, click Restart Computer.

Result: The Windows NT server has been installed. The Windows NT logon box appears.

Installing Windows NT 4.0 Server Service Pack 3

Perform this procedure immediately after installing Windows NT 4.0. Install Service Pack 3 from the Meridian Application Server Operating System CD-ROM. The service pack is in subdirectory sp3. The procedure below is applicable only if you are installing from subdirectory sp3 on the Meridian Application Server Operating System CD-ROM.

Requirements

- Meridian Application Server Operating System CD-ROM
- 1003t server with Windows NT 4.0 server installed

To install the service pack

1 Insert the CD-ROM in the CD-ROM drive.

Result: The Windows NT Setup window appears.

2 Close the window using the [x] in the upper right corner of the window.

3 Click the Start Menu and, under Programs, click the Windows NT Explorer to launch.

Result: The Windows NT Explorer window appears.

4 Click the plus sign (+) next to the CD-ROM drive to display its subdirectories.

5 Select the directory named sp3.

6 Locate the file, Update.exe, and double-click to run it.

Result: A welcome window appears.

7 Click Next.

Result: The license agreement appears.

8 To accept the license agreement, Click Yes.

9 To install the service pack, click Next.

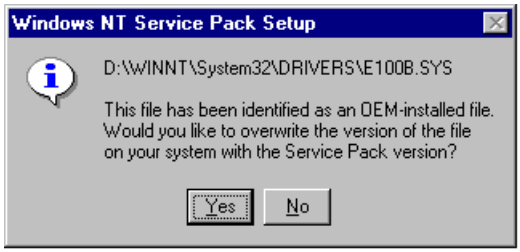
10 Select Yes, I want to create an uninstall directory. Click Next.

11 To finish installing the service pack, click Finish.

Result: The program examines the system, selects the files to copy, and then copies them. If messages appear, refer to the next three steps for the action to take in response.

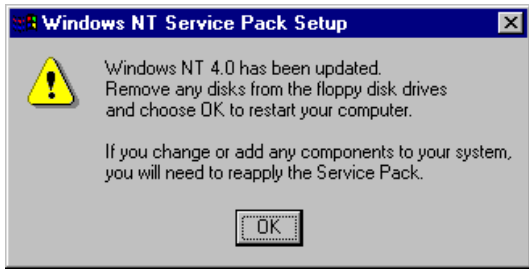
12 As the files are installed, the message `The target file exists and is newer than the source. Overwrite the newer file?` appears. Click No.

13 The following window can also appear:


Windows NT Service Pack Setup
D:\WINNT\System32\DRIVERS\E100B.SYS
This file has been identified as an OEM-installed file.
Would you like to overwrite the version of the file
on your system with the Service Pack version?
Yes
No

14 Click No.

15 When the message below appears, remove the CD-ROM from the CD-ROM drive and click OK:


Windows NT Service Pack Setup
Windows NT 4.0 has been updated.
Remove any disks from the floppy disk drives
and choose OK to restart your computer.
If you change or add any components to your system,
you will need to reapply the Service Pack.
OK

To apply the hot fix

1 Log on to the server as Administrator.

2 Insert the Symposium Call Center Server Release 3.0 Operating System CD Version 1.0 into the CD-ROM drive.

3 Make sure that hidden files are visible. To do so, follow these steps:

a. In Windows NT Explorer, select View → Options.

b. Select Show all files.

c. Click Apply, and then click OK.

4 Copy the folder Hotfixes\Microsoft\q178741 on the CD to the root of drive D.

5 In Windows NT Explorer, click the D:\Hotfixes\Microsoft\q178741 folder.

6 Double-click the file hfx.exe located in this folder.

Result: The Hotfix Manager window opens.

7 Click InstallNewFix.

Result: The Install Path dialog box opens.

8 Make sure that the path specified is d:\Hotfixes\Microsoft\q178741\hotfix.inf. If it is not correct, browse to this path.

9 Click OK.

Result: The program installs the hot fix on the server. When the installation is complete, the program notifies you that Windows NT has been updated.

10 Click Done.

Result: The program prompts you to restart the system. Do not click OK yet.

11 Restore the settings for hidden files. To do so, follow these steps:

a. In Windows NT Explorer, select View → Options.

b. Select Hide files of these types.

c. Click Apply, and then click OK.

12 Restart the server to apply the changes.

To complete the installation, you must perform "To format the remaining hard drives" below.

To format the remaining hard drives

Perform this procedure if you have more than one hard drive installed on your server.

Requirements

- 1003t server with MS-DOS and Windows NT server 4.0 installed. The server should be powered up and started to the Windows NT logon prompt.

1 Press Ctrl-Alt-Delete.

Result: The Windows NT logon box appears.

2 Log on to Windows NT.

Result: The Program Manager appears.

3 Click Start > Programs > Administrative Tools (Common).

Result: The Administrative Tools program icons are shown.

4 Click the Disk Administrator icon.

Result: The Disk Administrator notifies you that this is the first time it has been run.

5 Click OK.

Result: The Disk Administrator program might prompt you to accept that it will write a signature to each hard drive.

6 Click Yes to each request.

Result: The Disk Administrator writes a signature to all disks, and then displays the main program window.

Each SCSI disk (or RAID System Pack) is listed on the window. Each disk has a number (Disk 0, Disk 1, and so on). Disk 0 already has two partitions. If it is a 9 Gbyte disk, it has a 2048 Mbyte FAT partition and a 4096 Mbyte NTFS partition. (Disk 0 drive C is 2048 Mbytes. Disk 0 drive D is 4096 Mbytes.) Each remaining disk should be listed as Free Space.

7 Select the Free Space on one of the remaining disks (for example Disk 1) by pointing and clicking.

Result: The Disk Administrator highlights the Free Space with a thick black border.

8 Under the Partition menu, select Create Extended.

Result: The system prompts you for the size of the Extended partition.

9 Accept or enter the maximum size of the Extended partition, which is the whole disk.

Result: The Extended Partition is created.

10 Click and select the Free Space on the same disk.

Result: The Free Space is highlighted with a thick black border.

11 Under the Partition menu, select Create.

Result: The system prompts you for the size of the Logical Drive.

12 Enter 4096 Mbytes for the size of the partition, and click OK.

Result: The Logical Drive is created.

13 Click and select the Free Space on the same disk again.

Result: The Free Space is highlighted with a thick black border.

14 Under the Partition menu, select Create.

Result: The system prompts you for the size of the Logical Drive.

15 Enter 4096 Mbytes for the size of the partition, and click OK.

Result: The Logical Drive is created.

Note: Disk 1 drive F is 4096 Mbytes. Disk 1 drive G is 4096 Mbytes.

16 For each SCSI disk drive, repeat steps 7 to 15.

Note: Disk 2 drive H is 4096 Mbytes. Disk 2 drive I is 4096 Mbytes.

17 Under the Partition menu, select Commit Changes Now.

Result: The system prompts you to confirm your changes.

18 To commit the changes to disk, click Yes.

19 Click OK.

Result: The Disk Administrator program window appears.

20 Select the first newly created partition (for example, Disk 1 drive F) and under the Tools menu, select Format.

Result: The system prompts you to enter the formatting information.

21 Ensure the file system is NTFS, and check the box labeled Quick Format.

22 Click OK.

Result: The system prompts you to confirm the format.

23 To proceed with the format, Click Yes.

Result: Windows NT formats the drive. When the format is complete, the Format Summary Information window appears.

24 After viewing the disk format summary information, click OK.

Result: The Disk Administrator program window appears.

25 Repeat steps 20 to 24 to format the next drive. (You format four times, once each for drives F, G, H, and I.)

To complete the installation, you must perform “Installing the tape device driver” on page 115.

Installing the tape device driver

Introduction

The server is initially shipped with the tape device driver installed and configured. You can use the following procedure for failure recovery, if necessary.

Perform this procedure after installing MS-DOS and the Windows NT server. If you have just completed the procedures for installing the Windows NT server, skip to step 2 in the procedure "To install the tape device driver with Windows NT 3.51" below or "To install the tape device driver with Windows NT 4.0" on page 116 as appropriate.

To install the tape device driver with Windows NT 3.51

1. Press Ctrl+Alt+Delete at the same time.

   Result: The Windows NT logon box appears.

2. Log on as the Administrator.

   Result: The Program Manager appears.

3. Open the Main program group.

   Result: The Main program icons are shown.

4. Double-click the Windows NT Setup icon.

   Result: The Windows NT Setup dialog box appears.

5. Under the Options menu, select Add/Remove Tape Devices.

   Result: The Tape Device Setup dialog box appears.

6. Click Add.

   Result: The system prompts you to select the device driver you want to install.

7. Insert the device drive disk provided by the manufacturer.

8. Enter A: as the path to the driver.

9. Click Continue.

10 Click Install to install the selected driver.

Result: The system prompts you for the full path to the device driver. Windows NT automatically puts the path to the Windows NT CD-ROM.

11 Insert the Windows NT Server 3.51 CD-ROM in the CD-ROM drive, and click Continue.

Note: If you have a device driver disk for the tape drive, insert the disk in the floppy drive, enter A:\ as the path to the driver, and then click Continue.

Result: Files are copied to the system. You are returned to the Tape Device Setup dialog box, and the driver you installed should be listed.

12 Click Close to save these settings, and exit the Windows NT Setup dialog box.

Result: You are prompted that the changes will not take effect until the next system restart.

13 Click OK to close the message box, and restart the server to load the tape drive device driver.

To install the tape device driver with Windows NT 4.0

1 Power up the server, or press Ctrl-Alt-Delete.

Result: The Windows NT logon box appears.

2 Log on as the Administrator.

Result: You are logged on to Windows NT and the Start Menu appears.

3 Click Start > Settings > Control Panel.

Result: The Control Panel appears.

4 Double-click the Tape Devices icon.

Result: The Tape Devices control panel appears. Windows NT attempts to detect the installed tape drive. The list of available tape drive device drivers appears.

5 Select the appropriate device driver for the installed tape drive and click OK. Some tape drives might require a driver disk.

Result: The system prompts you to install the selected driver.

Note: If the tape device driver is listed, skip to step 8. If the tape driver is not listed and you have the manufacturer's supplied driver disk ready, insert the driver disk and click Have Disk.

Result: The system prompts you to insert the manufacturer's installation disk.

6 Insert the manufacturer's supplied installation disk into drive A, enter the path to the device driver, and click OK.

Result: The system prompts you to select a device driver from the displayed list.

7 Select the most appropriate driver and click OK.

Result: The system prompts you to install the selected driver.

8 To install the selected driver, click OK.

Result: The system prompts you to insert the Windows NT CD-ROM.

9 Insert the Windows NT CD-ROM in the CD-ROM drive and click OK.

Result: The driver files are copied to the system. The Tape Devices Control Panel appears.

10 To close the control panel and save the changes, click OK.

Result: The Windows NT Control Panel appears.

If you are installing base software as a failure recovery procedure, continue with Chapter 6, "Maintaining the software."

Installing NetRAID Assistant

To install NetRAID Assistant

1. Generate the NetRAID Assistant Utility disks from the HP Navigator CD-ROM.
1. Power up the server.

   Result: The Windows NT logon box appears.
2. Log on as the Administrator.

   Result: You are logged on to Windows NT and the Start Menu appears.
3. Insert the first disk of the utility set and, using either the Program Manager (NT 3.51) or Explorer (NT 4.0), run a:\setup.exe.
4. Follow the on-screen prompts to install the software, accepting the default values.
5. When the software is fully installed, restart the server to ensure these changes take effect.

Note: RAID activity can be monitored using the front panel buttons and LEDs. For example, a dead drive is signaled by a red LED flashing. Details about which hard drive is failed can be displayed using the Event section on the LCD screen.

Making an emergency repair disk

Introduction

An emergency repair disk enables you to start the server in the event that Windows NT on the server does not start.

ATTENTION

An emergency repair disk should only be used by support personnel or as requested by support personnel.

It is important that the emergency repair disk be updated on a regular basis (after any maintenance activities are performed on the server or anytime the server configuration changes).

To make an emergency repair disk

1. Power up the server.
2. Press Ctrl + Alt + Delete to display the logon window.
3. Log on to Windows NT as Administrator.
4. Insert the blank disk in the floppy drive.
5. Click Start, and then click Run.
6. When prompted, type **rdisk** and click OK.
7. Click Update Repair Info.
8. Click Yes to continue.

   Result: Setup prompts you to create the Repair disk.
9. Click Yes.
10. Click OK at the prompt.

    Result: The disk is formatted and configuration files are copied to the disk being created.
11. When complete, remove the disk from the floppy drive.
12. Click Exit on the Repair Disk Utility.

Chapter 6

Maintaining the software

Overview	122
Configuring the virtual memory	123
Tuning the server's performance	125
Configuring the modem	126
Preparing the server for remote access with pcANYWHERE32	130
Making an emergency repair disk	134
Performing standard procedures	135
Using the Symbios configuration utility	136
Configuring ISA non-Plug-and-Play boards (optional)	137

Overview

Introduction

This chapter contains initial installation procedures for setting up a server that has never been configured. These procedures have been performed by Nortel Networks before the 1003t server was delivered, and are not part of a normal field installation.

You can use the procedures as recovery procedures in the event of a system failure. Sections in this chapter outline procedures for configuring base software that the server needs to operate. Some procedures are necessary only if all base software must be reinstalled as a failure recovery procedure.

Configuring the virtual memory

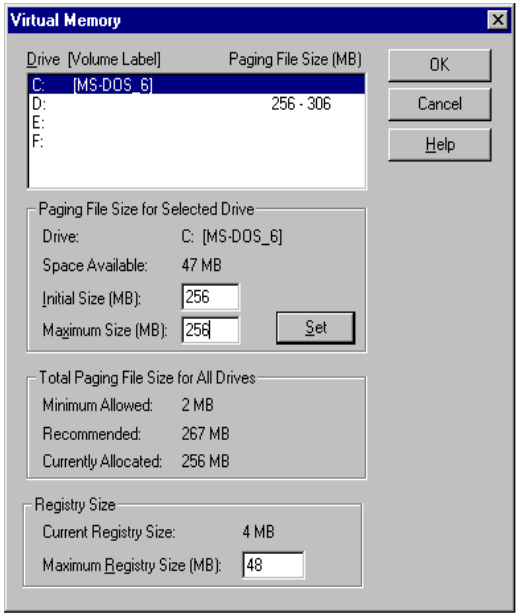
Introduction

The server is shipped with virtual memory configured. You can use the following procedure for failure recovery, if necessary.

Perform this procedure after installing the Windows NT 4.0 service pack. To operate efficiently, the server must be configured to use 268 Mbytes.

To configure the virtual memory

1. Click Start > Settings > Control Panel.
2. Double-click the System icon.
3. Click the Performance tab.



4. In the Drive (Volume Label), select the D: drive.

5 Under Paging File Size for Selected Drive, enter 268 for Initial Size (MB) and 268 for Maximum Size (MB).

6 Click Set.

7 Click OK.

Result: The system prompts you to restart the machine.

8 To restart the machine, click Yes.

Tuning the server’s performance

To tune the server’s performance

1. Click Start > Settings > Control Panel.
2. Double-click the System icon.
3. Click the Performance tab.
4. Change the Application performance slider to None, and click OK.
5. Exit the Control Panel and restart the system.

Configuring the modem

Introduction

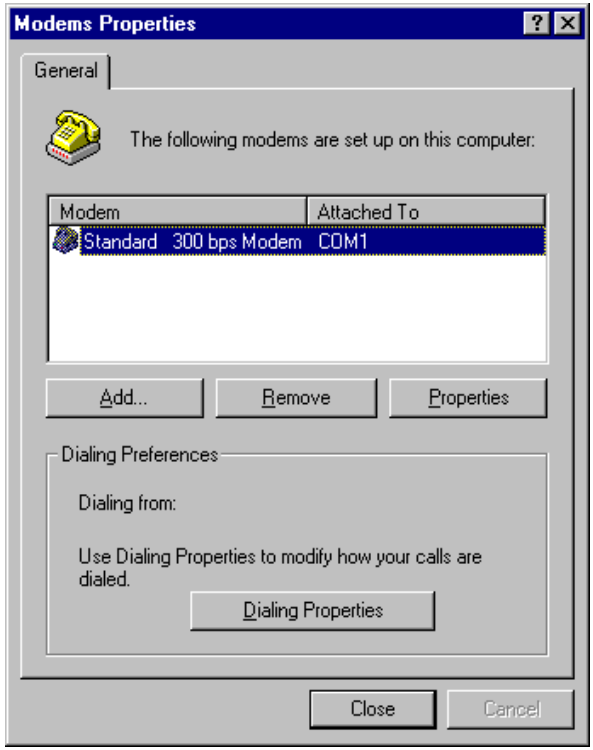
The server is initially shipped with the modem configured. You can use the following procedures for failure recovery, if necessary. Perform these procedures after installing MS-DOS and the Windows NT server.

To modify dial-up information

1 Power up the system and log on as Administrator.

2 Open the Modem Control Panel.

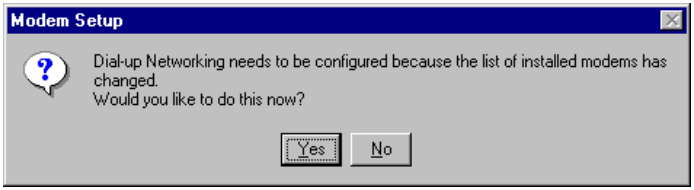
Result: The Modem Properties dialog box appears.



Note: The above figure is an example only.

3 Close the Modem Control dialog box.

Result: The following message appears:


Modem Setup
Dial-up Networking needs to be configured because the list of installed modems has changed.
Would you like to do this now?
Yes
No

4 Click Yes.

Result: The RAS Setup window appears.

5 Select the old modem listed (usually on COM1). Click Remove.

6 To confirm that you want to remove the modem, click Yes.

7 To add a modem, in the Remote Access Setup dialog box, click Add.

Result: The Add RAS Device prompt appears.

8 Select the correctly installed modem from the drop-down list, and click OK.

Result: The RAS Setup window appears.

9 To save the changes, click Continue.

10 To restart the computer, click Yes.

Adding a modem for remote access service

When you add a modem to your server, you can access the server by a remote service PC. Remote Access Service (RAS) enables you to perform many activities remotely, including maintenance and diagnostics. RAS is required for Nortel Networks support.

To add a modem to the server

1 Ensure that the AC cord of the modem is not plugged in.

2 Connect the large 25-pin male connector to the back of the modem. Tighten the connector screws.

3 Connect the 9-pin female connector to COM1 at the rear of the server. Tighten the connector screws.

4 Connect one end of the telephone cable to the modem RJ-11 jack labeled LINE.

5 Connect the other end of the telephone cable to the RJ-11 jack in the wall.

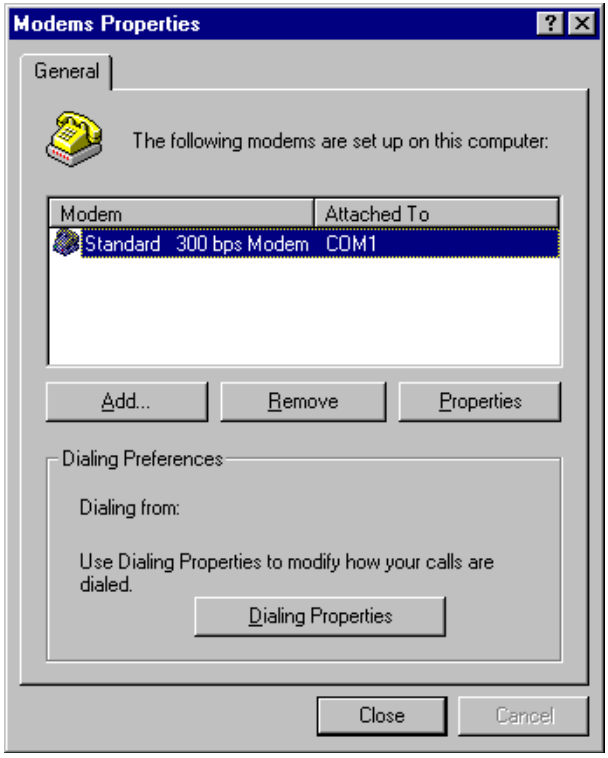
6 Connect the power cord to the modem and plug the other end into a wall receptacle or power bar. Turn on the modem.

To configure the remote access service modem

1 Power up the system and log on as Administrator.

2 Open the Modem Control panel.

3 The Modems Properties dialog box appears:

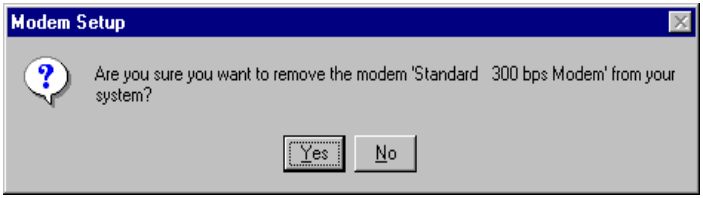


4 If a modem is listed and it does not match the modem installed, select it and click Remove.

Note: If a modem is listed and it matches the modem installed, go to the procedure “To reconfigure the remote access service modem” on page 58.

Also, if the modem listed is correct, review the procedure “To reconfigure the remote access service modem” on page 58 to ensure that your RAS settings are correct.

5 The following message appears:



6 Click Yes.

7 To add the correct modem, click Add.

Result: The Install New Modem panel appears.

8 Click Don’t detect my modem; I will select it from a list, and click Next.

Result: The Install New Modem dialog box appears.

9 Select the type of modem installed on the server, and click Next.

Note: If your modem is not listed, select the Standard 28800 bps Modem.

Result: The Install New Modem dialog box appears.

10 On Selected Ports, click COM1. Click Next.

11 To complete installing the modem, click Finish.

Preparing the server for remote access with pcANYWHERE32

Introduction

The server is initially shipped with pcANYWHERE32 installed. You can use the following procedure for failure recovery, if necessary.

After you have completed RAS configuration, you must install pcANYWHERE32 software on the server. With pcANYWHERE32, you can perform advanced administrative tasks on the server from a remote PC and control the server as though you were directly connected to it.

Note: For Symposium Call Center Server Release 3.0, you must ensure that the correct video driver is installed on the 1003t server before you install pcANYWHERE32. You can get information on compatible video drivers from the Nortel Networks web site at www.nortel-sccs.com.

To install pcANYWHERE32

1. Insert the Nortel Networks Symposium Call Center Operating System CD-ROM (for Release 3.0) or Meridian Application System CD-ROM (for Release 1.5).

   Note: The pcANYWHERE32 software is located on this CD-ROM.

2. Run the cdinst.exe program on the CD-ROM to start the installation.

   Result: The Installation window appears.

3. Click Install Software.

   Result: The Welcome window appears.

4. Click Next.

   Result: The User Information window appears.

5. Enter both the user and company names, and then click Next.

   Result: The Online License Agreement window appears.

6 Click Yes.

Note: This indicates that you accept the software license agreement.

Result: The Choose Destination window appears.

7 Select Browse to change the directory for installing pcANYWHERE32, and then click Next.

Result: The Setup Review window appears.

8 Select Next.

Result: The Symantec Support window appears.

9 Select Next.

Result: The How to Reach Us window appears.

10 Select Next.

Result: The Windows Solutions window appears.

11 Select Next.

Result: The Registration Wizard window appears.

12 Select Skip.

Result: The pcANYWHERE32 Setup window appears. The system asks whether you would like to view the readme file.

13 Select No.

14 Click Yes to restart the computer.

To upgrade pcANYWHERE32

To upgrade pcANYWHERE32, see the readme files on the Nortel Networks Symposium Call Center Server Operating System CD.

ATTENTION

Use only the recommended version of pcANYWHERE32 included with the Operating System CD to avoid potential operational problems when accessing the server through a remote PC.

To start pcANYWHERE32 for the first time

For Symposium Call Center Server Release 1.x

1 Double-click the pcANYWHERE32 icon.

Result: The Smart Setup Wizard window appears.

2 Click Next.

Result: The Network Device window appears.

3 Click the check box next to TCP/IP, and then click Next.

Result: The Direct Cable Connection window appears.

4 Select Finish.

For Symposium Call Center Server Release 3.0

1 From the Windows Start menu, choose Programs > pcANYWHERE32 > pcANYWHERE.

Result: The Smart Setup Wizard window appears. You are prompted for the modem device.

2 Choose the Sportster 28800-33600 External modem, and then click Next.

Result: The system prompts you to select the network device.

3 Ensure that only TCP/IP is selected, and then click Next.

Result: The system prompts you to select a port.

4 Click Finish to accept the default port.

5 Ensure that COM1 is selected, and then click Finish.

Result: The pcANYWHERE32 window appears.

To set the video mode

1 Double-click the pcANYWHERE32 icon.

2 Select Application Options from the File menu.

3 Select the Host Operation tab.

4 Click the Video mode drop-down list to select Default (Accelerator Enabled).

5 Click Apply.

6 Click OK to exit.

Configuring pcANYWHERE32

When you configure pcANYWHERE32, you set up a secure caller account to access the server. You can add a caller account for each remote PC, including Nortel Networks. These caller accounts restrict usage of pcANYWHERE32 to appropriate users.

To perform the administration task of adding Nortel Networks caller accounts in pcANYWHERE32, or to change passwords for security reasons, see the *Software Installation and Upgrade Guide*.

Making an emergency repair disk

Introduction

The software shipped with the server includes a Windows NT emergency repair disk. You can use the following procedure to create another disk, if necessary. An emergency repair disk enables you to start the server if Windows NT on the server does not start.

Requirements

- a blank 3.5-inch disk
- a server with a Windows NT operating system and the service pack installed. Virtual Memory must be configured.

To make an emergency repair disk

1. Power up the system and log on as Administrator.
2. Insert the blank disk into drive A.
3. Click Start > Run.

   Result: The Run dialog box appears.
4. In the Open box, type **rdisk** and click OK.

   Result: The Repair Disk Utility dialog box appears.
5. Click Update Repair Info.
6. Click Yes to continue.

   Result: The system prompts you to create the Repair disk.
7. Click Yes.
8. Click OK at the prompt.

   Result: The disk is formatted and configuration files are copied to the disk being created.
9. When complete, remove the disk from drive A.
10. Click Exit on the Repair Disk Utility.

Performing standard procedures

To change the workgroup name

1. Start the computer with Windows NT, and log on to the server as Administrator.
2. Open the Network Control Panel.
3. Click Change on the Identification tab.
4. Enter the new workgroup name and click OK.

   Note: The computer must not belong to a Windows NT domain. Application software cannot run if the computer is part of a Windows NT domain.
5. Click Yes to the cautionary prompt, which warns of possible problems.
6. To restart the computer, click Yes.

Using the Symbios configuration utility

Introduction

If you need to verify or modify SCSI host adapter settings, low-level format SCSI disks, or verify SCSI disk media, run the Symbios Configuration utility.

To verify or modify the SCSI host adapter settings

1. Power up or restart your system.
2. During system startup or reset, when the message `Press <Ctrl> <C> to start Symbios Configuration Utility` appears, press Ctrl and C at the same time.
3. To select an option, use the arrow keys to move the cursor, or press Esc to exit.

To change adapter settings

1. From the Main Menu, select an adapter from the list.
2. Select Adapter Setup. This option configures the SCSI ID setting and other advanced adapter settings.

To format a hard disk or change hard disk parameters

1. From the Main Menu, select an adapter from the list.
2. Select Device Selections.
3. Select the hard disk to format.
4. Select the Format menu option.

Configuring ISA non-Plug-and-Play boards (optional)

Reserving resources for ISA non-Plug-and-Play boards

If you have installed an ISA non-Plug-and Play accessory board, you must reserve system resources for it.

To reserve resources for ISA non-Plug-and-Play boards

Power up the monitor and the server. When the message `Press <F2> to enter Setup` appears, press F2.

Note: When you press F2 after the prompt, the Setup utility should start. For some ISA boards, the Setup utility does not start after prompting. If this happens, remove the ISA board, use the Setup utility to reserve system resources for the ISA board, and reinstall the ISA board. Use the Setup utility to allocate system resources to the ISA non-Plug-and-Play accessory board.

Configuring an ISA non-Plug-and-Play board

If you installed an ISA non-Plug-and-Play accessory board (such as certain modem boards, network interface boards, or multiport boards) in a server, you must reserve system resources for the board by using the Setup utility.

To configure an ISA non-Plug-and-Play board

1. Read the documentation for the accessory board and determine what system resources it requires (for example, memory range, I/O port range, DMA channel, and interrupt [IRQ] level). For some resources, there might be one value or several values from which you can select by configuring jumpers or switches on the board. A board might not require resources from all categories. If the documentation does not discuss some resources, they might not be required and need not be reserved.
2. Power up the server and display monitor. When the message `Press <F2> to enter Setup` appears, press F2.

3 If a password has been set, provide it when prompted.

4 When the Setup Utility menu appears, use the left and right arrow keys to select the Configuration menu.

5 Use the up and down arrow keys to highlight ISA non-Plug-and-Play Devices, and press Enter to select that submenu.

6 Use the up and down arrow keys to highlight Memory Resources, and press Enter to select that submenu.

7 Use the up and down arrow keys to highlight the memory block that corresponds to the memory range required for the ISA board you are installing, and press the + or - key on the keypad to reserve it. If the memory range required for a board spans two or more blocks shown on the screen, reserve all blocks required by the board. If the memory range required for the board is less than one block, select the whole block that contains the range.

8 When all the necessary memory blocks are reserved, press Esc to return to the ISA non-Plug-and-Play Devices submenu.

9 Use the up and down arrow keys to highlight the DMA Resources item, and press Enter to select that submenu.

10 Use the up and down arrow keys to select the DMA channel that corresponds to the DMA channel required for the ISA board you are installing, and press the + or - key on the keypad to reserve it. Reserve all DMA channels needed for the board.

11 When all the necessary DMA channels are reserved, press Esc to return to the ISA non-Plug-and-Play Devices submenu.

12 Use the up and down arrow keys to highlight I/O Resources, and press Enter to select that submenu.

13 Use the up and down arrow keys to highlight the I/O port block that corresponds to the I/O port range required by the board you are installing, and press the + or - key on the keypad to reserve it. If the I/O port range required for the board spans two or more blocks shown on the screen, reserve all blocks required by the board. If the I/O port range required for the board is less than one block, select the whole block that contains the range.

14 When all the necessary I/O port blocks are reserved, press Esc to return to the ISA non-Plug-and-Play Devices submenu.

15 Use the up and down arrow keys to highlight Interrupt Resources, and press Enter to select that submenu.

16 Use the up and down arrow keys to highlight the IRQ that corresponds to the IRQ required for the board you are installing, and press the + or - key on the keypad to reserve it. Reserve all IRQs needed for the board.

17 When all the necessary IRQs and other resources are reserved, press F10 to save and exit.

18 In the Setup Confirmation dialog box, press Enter to answer Yes to the question, `Save configuration and exit now?`.

Result: The server restarts.

Note: If you want to exit the Setup utility without making the changes you have selected, press Esc once or twice to return to the Setup Utility menu. Use the right arrow key to select the Exit menu. Use the down arrow key to highlight Exit Discarding Changes. In the Setup Warning dialog box, use the spacebar or right arrow key to highlight Yes, and press Enter.

Chapter 7

Performing hardware maintenance

In this chapter

Section A: Chassis components 143

Section B: RAID system 151

Section C: Slot assignments and IRQ mapping 163

Section D: Installing additional processors 169

Section E: Optional cards and tape drives 173

Section F: Media drive bays 193

Section G: Replacing memory 199

Section H: Installing mass storage devices 203

Section A: Chassis components

In this section

Overview	144
Removing the 1003t server covers	145
Replacing hot-swappable components	147

Overview

Introduction

You can remove or replace the following chassis components:

- bezel
- covers
- hot-swappable components
- status display

The following sections outline procedures for removing and replacing chassis components.

Removing the 1003t server covers

Introduction

The 1003t server has three removable cover panels:

- 1 – covers the side where the I/O board is located
- 2 – covers the area above the system board assembly
- 3 – covers the side where the processor and memory cages are located

The following procedures describe how to remove the covers from the 1003t.

If you are installing accessory boards or mass storage devices, remove the front bezel and cover 1. If you are installing memory, remove the front bezel and cover 3.

WARNING

Risk of injury due to exposure to high energy levels

Before removing covers, always disconnect the power cords and unplug telephone cables. Disconnect the power cords and wait 20 seconds to avoid exposure to high energy levels that might cause burns when parts are short-circuited by metal objects, such as tools or jewelry. Disconnect telephone cables to avoid exposure to shock hazard from telephone ringing voltages.

The power switch does not turn off the standby power. Disconnect the power cords to turn off standby power. If the back light on the LCD display is on, standby power is also on.

CAUTION

Risk of electrostatic discharge

Wear an ESD wrist strap and use a static-dissipating work surface connected to the chassis at all times.

To remove a cover

1. Turn off the server, then disconnect both power cords, and wait 20 seconds. Disconnect the telephone cord.
2. Unlock the bezel lock with the key from the key bag located on the rear of the server.
3. To remove the front bezel, pull the top of the bezel away from the chassis, and then lift the bezel up and off the chassis.
4. Loosen the thumbscrew at the front of each cover, pull the cover forward using the handle on the cover, and then lift it off the chassis. (You might need a Torx T-15 screwdriver.)

To replace the 1003t server covers

CAUTION

Risk of damage to system components

Replace all covers before operating this server, even for a short time. Otherwise, damage to system components might result due to improper cooling air flow. Do not operate the server without a ventilated hard disk spacer in each position where a hot-swappable disk is not present.

1. To replace a cover, insert the tabs inside the rear of the cover into the slots at the rear of the chassis. Slide the side cover toward the rear. Tighten the thumbscrew at the front of the cover.
2. To replace the bezel, insert the tabs at the bottom of the bezel into the slots at the bottom of the chassis front. Press the top of the bezel to the chassis until it snaps into place. Lock the bezel lock with the key provided.
3. Replace both power cords and the telephone and I/O cables.

Replacing hot-swappable components

Introduction

If your system experiences problems with the cooling fan, hard drives, or the power supply, you can replace these parts without shutting down the server. These hot-swappable components enable you to leave the server on and operational while you replace redundant components.

Note: A RAID controller must be present to replace hard disks without shutting down the system. For more information on RAID, see page 152.

System monitors

The chassis incorporates on-board management features that notify the operator in case of a problem. Power supply, fan, and chassis temperature status are constantly monitored. In the event of a failure, an alarm sounds and the appropriate LED on the front panel illuminates as an indication. The LED on the failed power supply module turns from green to red.

Hot-swappable components

The following components are easily hot-swapped:

- power supplies
- cooling fans
- SCA SCSI hard drives

Requirements

Prior to hot-swapping a power supply, cooling fan, or SCSI hard drive, you require the following items:

- one flat-blade screwdriver
- one Torx T-15 screwdriver
- one antistatic wrist strap

- replacement power supply, if needed
- replacement cooling fan module(s), if needed
- replacement hard drive(s), if needed (two 9 Gbyte SCSI hard disks, hot-swappable)

When to hot-swap the power supply

A green LED indicates that the power supply is working properly. If the green LED on the power supply module is unlit or red, the module is failing or has failed. Other indicators include the alarm sounding and the power supply module LED on the status display turning red.

To hot-swap a power supply

DANGER

Risk of electric shock

Hazardous voltage and current inside the chassis can cause severe injury. Do not place hands, objects, or tools into the power supply opening.

1. Remove the power cable attached to the power supply that you intend to remove.
2. Unscrew the four screws that fasten the power supply to the chassis.

   Note: Set the screws aside to use when you are replacing the power supply.
3. Grasp the two raised edges on either side of the power supply.
4. Pull the power supply away from the chassis and set it aside.
5. Remove the replacement power supply from its protective wrapping.
6. Fit the power supply into the opening left by the faulty power supply, and push it back until the front is flush to the chassis.
7. Replace the four screws that fasten the power supply to the chassis.
8. Reattach the power cord to the power supply.

When to hot-swap the fan

When the LED associated with a cooling fan becomes red, the fan requires replacement.

To hot-swap a cooling fan

1. Remove the front bezel. Use the front panel display LED to locate the defective fan.
2. Loosen the thumbscrew located on the outside of the failed cooling fan module. If needed, use a flat-blade screwdriver.
3. Unseat the cooling fan module by sliding the module horizontally away from the display and toward the rack rail.

   Result: The module power connector unseats from the power connector located behind the display and LEDs.
4. Slide the failed cooling fan module out of the chassis.
5. Align the replacement cooling fan module tabs with the four support slots on the chassis. Be sure the module is oriented with the thumbscrew, and insert the tabs into the supporting slots of the chassis.
6. Slide the cooling fan module toward the front panel display and into position.

   Result: The fan module connects with slight resistance. The fans rotate and pull air into the chassis. The cooling fan LED goes out.
7. Tighten the module's thumbscrew and replace the front bezel.

When to hot-swap hard drives

With a RAID controller, hot-swap device drivers, and operating system support, you can hot-swap SCA SCSI hard drives on the 1003t server.

To replace hot-pluggable SCA SCSI hard drives

1. Ensure that the drive you are installing is the same type and has the same capacity as the drive you are replacing.
2. Check the two banks of LEDs on the front panel to determine which drive is faulty. The activity status LED (the LED on the right) on the faulty drive might show steady green (disk hung), flashing amber (disk failure predicted), or steady red (disk failed).
3. Unlock the hot-swap mass storage cage (left or right) that contains the bad drive.
4. Push in the blue pop-in cover, grasp the plastic drive carrier lever, and pull it toward you to disengage the drive connector from the backplane connector.
5. Wait about 30 seconds for the drive to stop spinning and the drive heads to park.
6. Slide the bad drive forward out of the bay. Place the drive on an antistatic surface.
7. Ensure that the drive carrier lever is fully opened on the new drive. Position the new plastic carrier and drive assembly so that they engage the bay guide rails.
8. Gently push the drive into the bay until it docks with the backplane connector.
9. Close the drive carrier lever to lock the drive connector into the backplane connector.
10. For security, lock the hot-swap mass storage cage.

Note: If the drive you replaced was part of a RAID mirrored system pack, run netRAID utility software under Windows NT to rebuild that drive. If you do not, the system is prone to data loss if another disk fails.

Section B: RAID system

In this section

Overview	152
Integrated NetRAID controller	154
NetRAID utilities	157
NetRAID express tools	158
Disk locations	159
Replacing and configuring drives	160

Overview

Introduction

The 1003t server comes with an integrated NetRAID controller. Redundant Arrays of Independent Disks (RAID) is a technology that can combine two or more drives for fault tolerance and performance. You can configure the drive bay in the 1003t server to RAID level 1 array using the optional hardware RAID controller.

For information on configuring the RAID system, see “Configuring the RAID system” on page 74.

Drive array bays

There are 12 Single Connector Architecture (SCA) 3.5-inch full-width drive array bays available in which to add hot-pluggable disk drives. They provide up to 27 Gbytes of hard disk storage using 6 mirrored 9 Gbyte drives.

RAID levels

The RAID controller provides high-performance disk mirroring. RAID Level 1 is always implemented.

- Level 1 - mirroring

  Two equal-capacity disks mirror each other. One disk serves as the backup copy of the other disk. If one drive fails, the other automatically replaces it. This level prevents loss of information and network time.

RAID software

The Windows NT operating system supports mirroring in software without a hardware RAID controller. This software-only approach is not recommended or supported by Nortel Networks.

RAID and hot-swappable components

A RAID controller is also essential to hot-swap SCA SCSI hard drives. If you replace a drive during system operation without the RAID controller, hot-swap device drivers, and operating system support, you can cause a fatal system error, force a system restart, and cause data loss.

Integrated NetRAID controller

Introduction

The integrated NetRAID controller lets you link multiple hard disk drives together and write data across them as if they were one large drive. With the integrated NetRAID controller, you can configure your linked drives into a Redundant Array of Independent Disks (RAID) subsystem.

Physical drives

A physical drive is a single hard disk module.

Arrays

The integrated NetRAID controller can combine up to eight physical drives into one array. It is recommended that all drives in an array have the same capacity. If you use drives with different capacities in an array, all the drives in the array are treated as though they have the capacity of the smallest drive.

Arrays can combine disk drives that are all on one channel, or they can combine disk drives from one or two different channels.

Hot spares

A hot spare is a powered-on, standby drive that is ready for use should another drive fail. When a drive fails, the NetRAID firmware can automatically rebuild the data from the failed drive onto the hot spare. The system administrator can then replace the failed drive and designate the replacement as the new hot spare drive. Until a rebuild occurs, a hot spare does not contain user data.

There are two types of hot spares:

- A global hot spare is used if a drive in any array fails.
- A dedicated hot spare is reserved for use by a single array.

Logical drives

A logical drive is a virtual drive that is assigned some portion of the total capacity of an array. For example, if you have an array of drives with a total capacity of 80 Gbytes, you can create a logical drive with a total capacity of 20 Gbytes within that array.

A logical drive takes three forms:

- It uses all of the storage capacity of one array.
- It uses less than the available storage capacity of one array.
- It spans arrays by spreading across two, three, or four different arrays.

Non-spanned arrays with redundancy: RAID level 1

RAID 1 mirroring

In RAID 1 configurations, data on one drive is completely duplicated on another drive. This is called mirroring. RAID 1 must be configured on a two-disk array (the array cannot contain more than two drives). With this algorithm, if either of the two drives fail, data is available from the duplicate drive. Data is written as follows:

	Drive 1	Drive 2
Stripe 1	Block 1	Block 1
Stripe 2	Block 2	Block 2
Stripe 3	Block 3	Block 3

RAID 1 advantages

There is no data loss or system interruption due to drive failure; if one drive fails, the other is available. Read performance is fast because data is available from either drive.

RAID 1 summary

Choose RAID 1 if high availability and performance are important, but cost is not a major concern.

Raid level summary

RAID level	RAID 1
Also known as	mirroring
Fault tolerance	yes
Redundancy type	duplicate
Hot spare option	yes
Drives required	two
Usable capacity	least
Capacity reduction	50%
Read performance	intermediate
Random write performance	intermediate
Sequential write performance	intermediate
Typical usage	most small random writes with fault tolerance

NetRAID utilities

Introduction

After you have configured your arrays and logical drives, there are three utilities that help you manage NetRAID systems. Two of these utilities are available to specific network operating systems:

- NetRAID assistant (used with Windows NT)
- NetRAID express tools (used with all network operating systems)

NetRAID assistant

When configuring the system for the first time, use NetRAID assistant. This utility has an object-oriented graphical user interface.

To start NetRAID assistant

Click the NetRAID icon in the Windows Program Manager.

NetRAID express tools

Introduction

NetRAID express tools is a text-based configuration utility that is contained in the controller firmware and is available to all network operating systems. NetRAID express tools contains some advanced management and diagnostic features that are not available with NetRAID assistant or NetRAID config.

To start NetRAID express tools

1. Log off all users, close all applications, and power down the server.
2. Restart the server.
3. When the messages `Option: Experienced users may press Ctrl M for NetRAID Express Tools now` and `Firmware Initializing` appear, press Ctrl M.

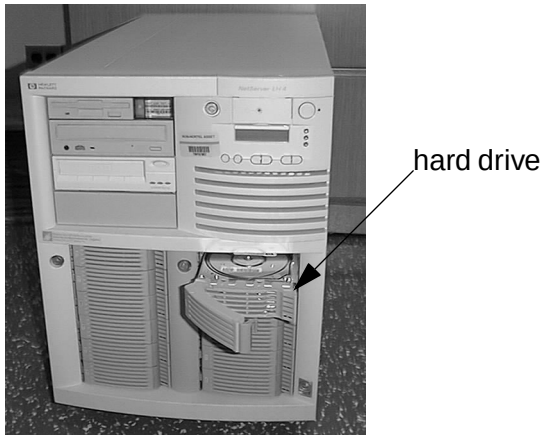
Disk locations

For drive locations and labels, see “Drive locations and labels” on page 74.

Replacing and configuring drives

Introduction

Replace any of the six SCSI hot-swappable drives from the drive bay if they should fail or if you want to upgrade. The 1003t server also operates one additional hard drive from the media drive bay that you can replace. Once you replace hard drives, you must configure them.



To set SCSI IDs

1. Set SCSI IDs to 0. Disable termination.
2. Check that the SCSI ID of the tape drive matches the drive you are replacing.
3. Ensure that Parity Checking is enabled on the tape and disks.
4. Check that the tape drive is configured to enable termination for its SCSI channel.

   Note: You require a wide (68-pin) to narrow (50-pin) connector to connect a narrow tape drive to the wide SCSI bus.

Disk bay assignments

For Symposium Call Center Server, the hard disks should be installed in the two disk enclosures as follows. The table below shows the physical disk locations and SCSI IDs.

SCSI ID	SCSI_B / Channel 1	SCSI_A / Channel 0
ID 9	Unused	Unused
ID 8	Unused	Unused
ID 3	Unused	Unused
ID 2	Disk A2-1	Disk A2-0
ID 1	Disk A1-1	Disk A1-0
ID 0	Disk A0-1	Disk A0-0

Note: The table is oriented the same as the front of the server. For example, the Disk A0-1 is located in the bottom drive bay of the secondary hot-swap enclosure. Disk A0-0 is located in the bottom drive bay of the primary hot-swap enclosure.

Section C: Slot assignments and IRQ mapping

In this section

Overview	164
1003t slot assignments	165
1003t IRQ mapping	167

Overview

Introduction

This section illustrates slot assignments and IRQ mapping for the 1003t server.

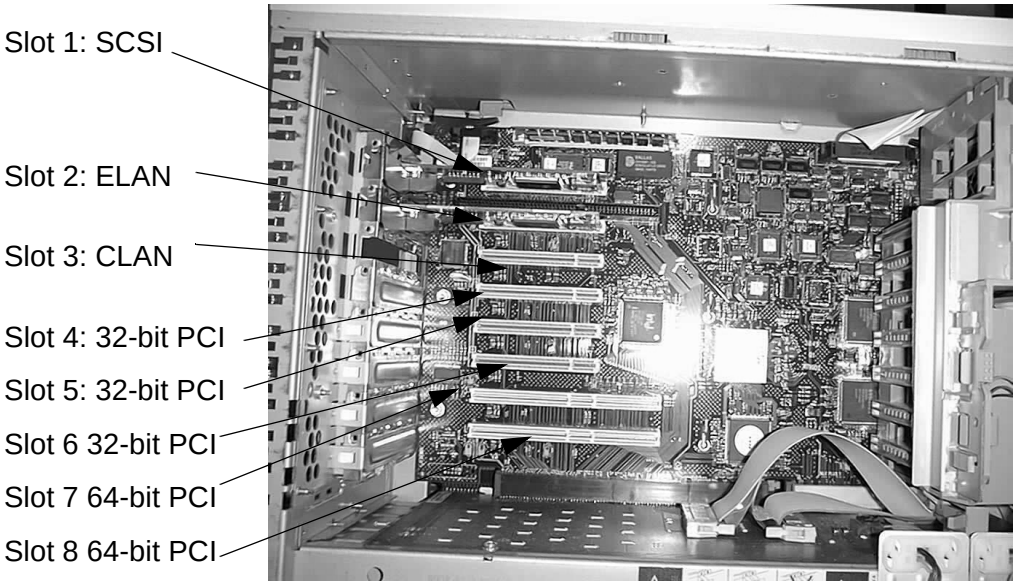
1003t slot assignments

Introduction

The 1003t server baseboard provides one ISA slot and eight PCI slots all controlled by the 1003t system bus interface architecture. It is not desirable to use the ISA slot at all. However, if required, only use the ISA slot for a serial application card.

Note: If a PCI card is installed in PCI slot 1 then no ISA card can be mounted in ISA slot 1 (and vice-versa).

PCI slot 1 is reserved for the PCI SCSI controller. The PCI slots 2 and 3 are reserved for PCI LAN interface cards. PCI slots 4 to 8 are reserved for application cards.



The following table shows the recommended slot assignments for the various add-in PCI and/or ISA cards, indeterminate behavior may occur if these recommendations are not used.

Slot	Installed Hardware	IRQ
ISA Slot	Nothing installed.	-
PCI Slot 1	PCI SCSI Controller	11
PCI Slot 2	ELAN Network Adapter	10
PCI Slot 3	CLAN Network Adapter	5
PCI Slot 4	Available for SCCS.	-
PCI Slot 5	Available for SCCS.	-
PCI Slot 6	Available for SCCS.	-
PCI Slot 7	Available for SCCS.	-
PCI Slot 8	Available for SCCS.	-
On-Board	SCSI Controller A	15
On-Board	SCSI Controller B	15
On-Board	NetRAID Adapter	15

1003t IRQ mapping

Introduction

This table provides the logical interrupt mapping of interrupt sources to APIC level interrupts on the system board assigned to the 1003t:

Interrupt	I/O APIC level	Device name
INTR	INT0	Processor interrupt
IRQ0	INT2	Timer (from PIIX4)
IRQ1	INT1	PS/2 keyboard controller
IRQ2		Unused (interrupt signal internal to PIIX4)
IRQ3	INT3	on-board serial port B (COM2)
IRQ4	INT4	on-board serial port A (COM1)
IRQ5	INT5	Customer LAN (CLAN) network interface
IRQ6	INT6	Floppy disk drive controller
IRQ7	INT7	Parallel port 1 (LPT1)
IRQ8	INT8	Real-time clock
IRQ9	INT9	APIC SCI interrupt
IRQ10	INT10	Embedded LAN (ELAN) network interface
IRQ11	INT11	SCSI adapter (to connect tape drive)
IRQ12	INT12	PS/2 mouse port
IRQ13	INT13	Math coprocessor
IRQ14	INT14	IDE Channel 1 (IDE CD-ROM Drive)

Interrupt	I/O APIC level	Device name
IRQ15	INT15	Primary and secondary RAID and SCSI controllers

Note: Although IRQ2 is unused, it is actually shared with IRQ9 as a cascade interrupt to support IRQs 8 to 15. Any board set to IRQ2 automatically redirects to IRQ9, be it a 16-bit or 8-bit board.

The PCI interrupts are hard-wired into the PIIX4 device and must be directed to one of the ISA IRQ lines. Since there are more devices and slots than PCI interrupts, embedded devices must share interrupts with expansion slots.

It is possible to disable the IDE controller and reuse the interrupt for that controller (only if a SCSI CD-ROM were used instead in the 1003t). In this case the IDE cable must be physically unplugged from the board connector if a cable is present. The process of disabling the drive by configuring the BIOS option does not free up the interrupt.

Section D: Installing additional processors

In this section

Installing or Replacing Pentium III processors 170

Installing or Replacing Pentium III processors

Introduction

The 1003t for Symposium Call Center Server is shipped with dual Intel Pentium III Xeon 500 MHz processors. You can install an additional two processors for a quad operation.

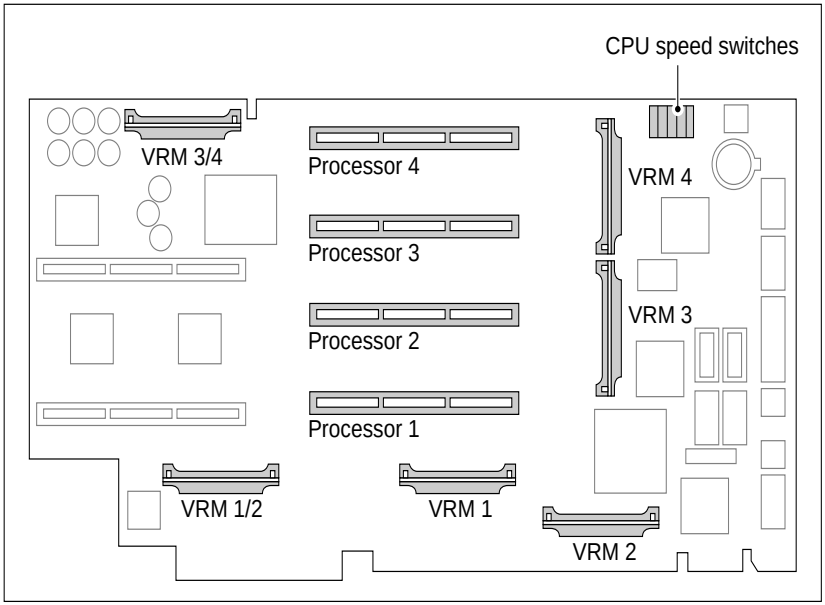
To install Pentium III processors

1 Power down the server.

2 Disconnect the power cords.

3 Remove the side and top covers and bezel.

4 Locate the I/O board, processor, and memory cages.

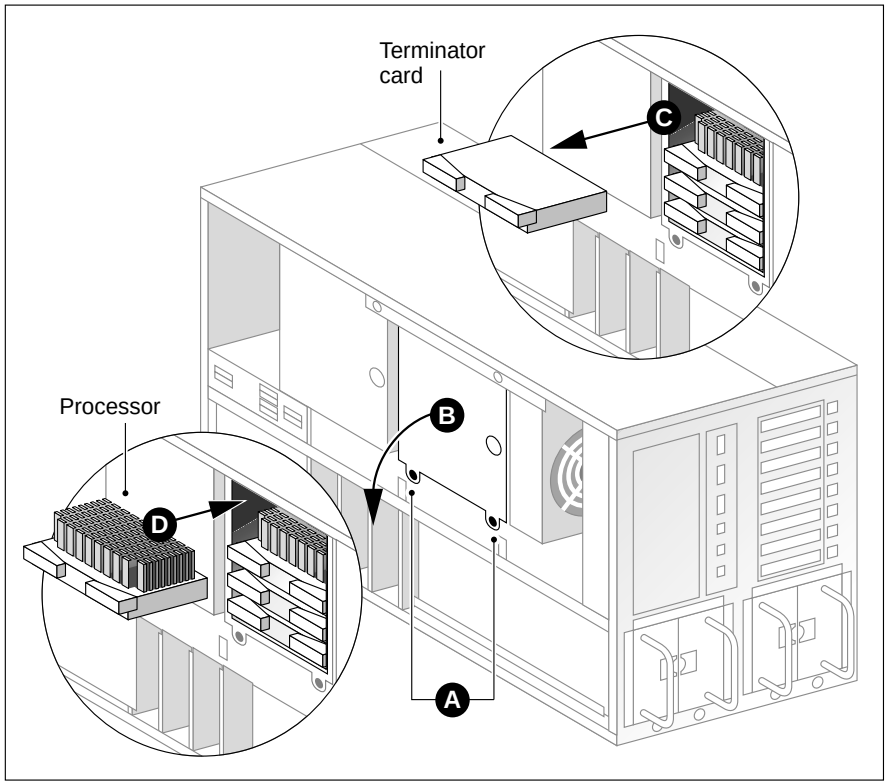


5 Loosen the four screws at the top of the CPU baseboard assembly.

6 Remove the CPU assembly by pulling the latches up and slowly lifting it up and drawing it out.

7 Locate the processor or terminator card being replaced. Refer to the drawing below:

8 Pull the latches up and slowly withdraw the card.



9 Insert the processor starting from the bottom.

10 Secure the latch.

11 Locate the voltage regulator module (VRM) slot that corresponds to the processor and populate it with the approved VRM (for example, for processor 3, populate VRM3).

12 Repeat steps 7 to 11 for each processor being installed or replaced.

13 Reinsert the CPU baseboard assembly into its slot in the chassis and secure the four screws.

14 Reinstall the side and top covers and the bezel.

15 Reconnect the power cords.

16 Power up the server.

Section E: Optional cards and tape drives

In this section

Replacing ELAN cards	174
Installing CLAN cards	179
Replacing CLAN cards	182
Replacing the SCSI card	187
Installing a tape drive	191

Replacing ELAN cards

Introduction

The ELAN network card is the primary network interface. It is a minimum system requirement for the 1003t server. Although the card must always be an Ethernet card installed in a PCI slot, it can be either Intel or 3Com.

To replace an ELAN network card

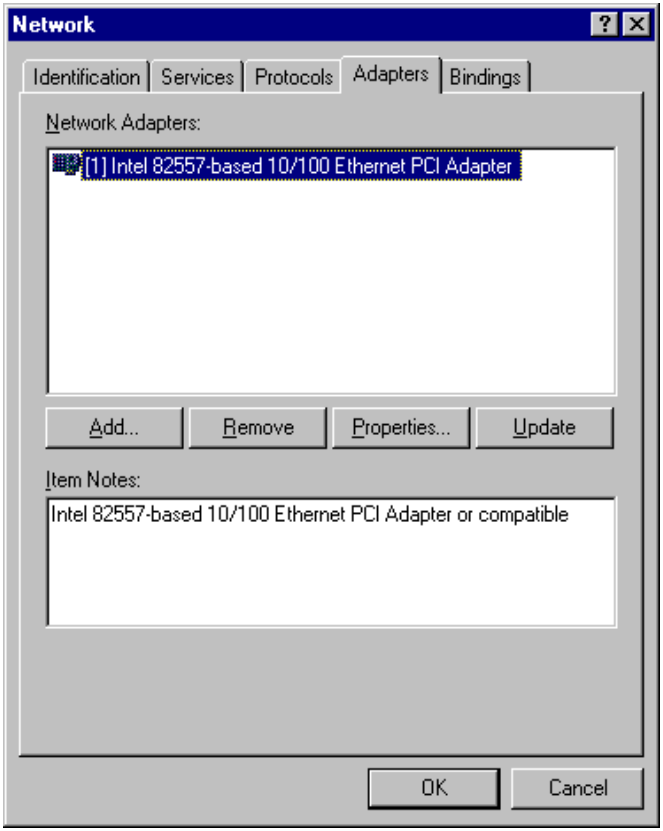
1. Disconnect both power cords and wait 20 seconds.
2. Check the appropriate slot assignment on page 165.
3. Remove the chassis cover to expose the installed cards.

   Note: For more information on removing the chassis cover, see “To remove a cover” on page 146.
4. Disconnect external network cables.
5. Refer to the figure on page 165 to determine which card is the ELAN network card.
6. Set aside any cables covering the card.

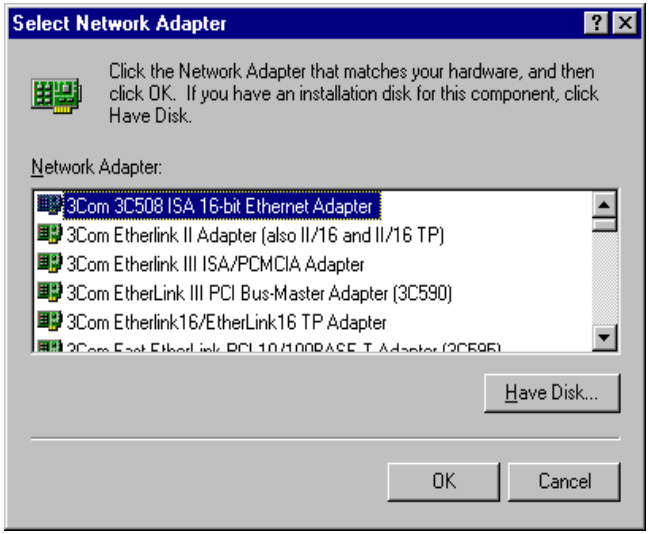
   Note: The network card has no internal cable connectors.
7. Free the card from the faceplate by unfastening the screw and removing the clamp from the rear cover.
8. Lift the card out of the slot and set it aside.
9. Unpack the replacement card and insert it into the proper slot.
10. Align the card with the faceplate and secure it by inserting the clamp through the rear cover and tightening the screw.
11. Replace the chassis cover.
12. Connect the ELAN network cable.
13. Reconnect both power cords.

To install an ELAN network card driver

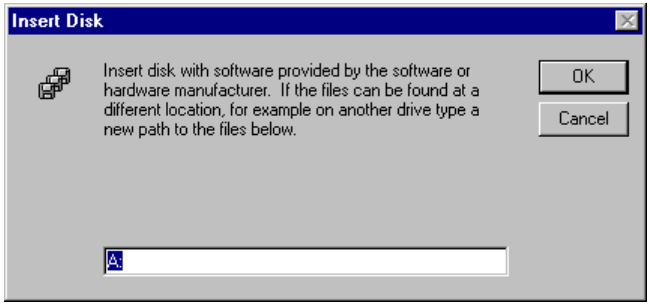
1. Restart and log on to the server as Administrator.
2. Open the Network Control Panel and select the Adapters tab.
3. To add the adapter, click Add.



4 To load the device drive, click Have Disk.


Select Network Adapter
Click the Network Adapter that matches your hardware, and then click OK. If you have an installation disk for this component, click Have Disk.
Network Adapter:
3Com 3C508 ISA 16-bit Ethernet Adapter
3Com Etherlink II Adapter (also II/16 and II/16 TP)
3Com Etherlink III ISA/PCMCIA Adapter
3Com EtherLink III PCI Bus-Master Adapter (3C590)
3Com Etherlink16/EtherLink16 TP Adapter
Have Disk...
OK
Cancel

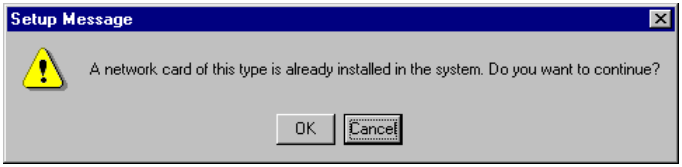
5 Insert the driver disk for the ELAN network card in the disk drive, and press Enter.


Insert Disk
Insert disk with software provided by the software or hardware manufacturer. If the files can be found at a different location, for example on another drive type a new path to the files below.
OK
Cancel
A:

6 If the driver disk contains drivers for more than one network card, the system prompts you to select the driver you want to install. Choose the driver that matches the installed ELAN card, and click OK.

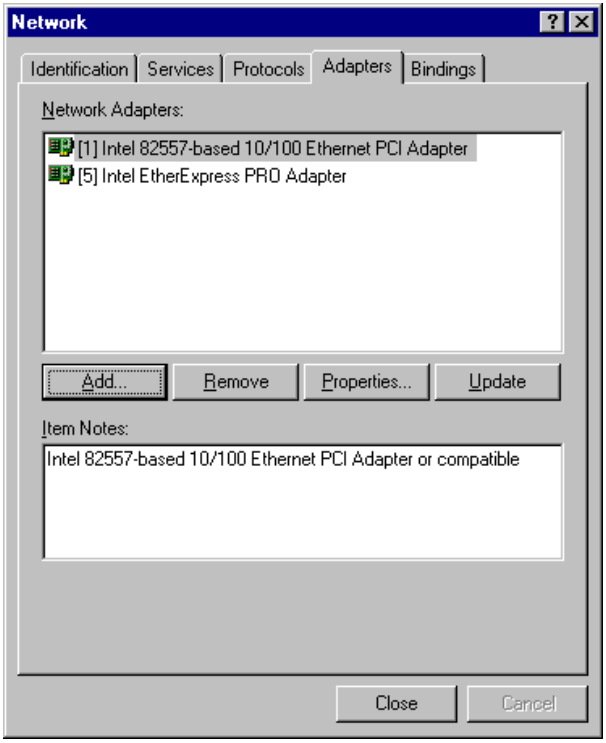
7 When the following window appears, click OK.

Note: You see this window only if ELAN and CLAN are the same.



Result: Some files are copied to the system and the new network card is listed in the network dialog box.

Note: Screen shots for specific cards are not included as they might differ, depending on your configuration. If you need help installing a driver, contact your Nortel Networks customer support representative.



8 To close the network control panel, click Close.

Result: The TCP/IP properties panel appears.

9 In the Adapters box, select the new driver installed.

10 Enter the customer-supplied IP address. Click OK.

Result: The system prompts you to restart the computer.

11 Click Yes.

Installing CLAN cards

Introduction

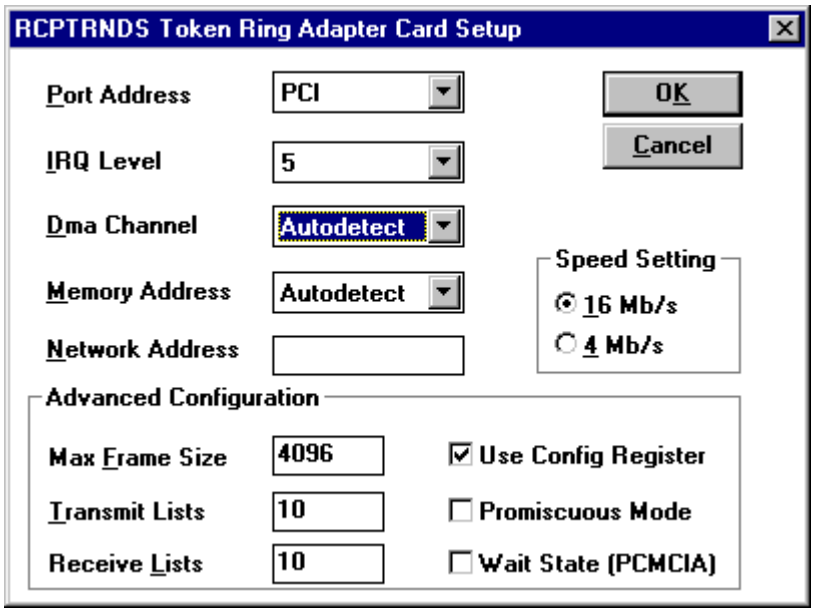
The Customer Local Area Network (CLAN) card connects Nortel Networks systems to the customer's internal LAN. It can be Token Ring or Ethernet. Install this card in a dual network configuration.

To install the Racore PCI Token Ring card

1. Power down the server.
2. Install the supplied CLAN PCI network card in the slot defined in the slot assignments table (PCI slot 3).
3. Power up the system and log on as Administrator.
4. Open the Network Control Panel.
5. Click on the Adapters tab.
6. Click Add... to add the adapter.
7. Click Have Disk... to load the device driver.
8. Insert the Racore device driver disk for the CLAN card, type **a:\windows.nt** as the path to the driver, and press Enter.
9. Select the Racore Preferred Token Ring NDIS Driver and click OK.

   Result: You might be prompted to select in which type of bus the card is installed. Select Bus Type: PCI and Bus Number: 0.

10 Complete the network card configuration dialog box as shown below:



11 Click OK.

Result: The configuration dialog box closes.

12 Click Close.

Result: The network control panel closes and the network card configures.

13 Enter the TCP/IP information for the card. Ensure you have the correct card selected by checking the drop-down list labelled Adapter,

14 Click OK.

Result: The TCP/IP configuration window closes.

15 Click Yes to restart your computer.

To install an Ethernet CLAN card

1 Power down the server.

2 Install the optional Ethernet CLAN card in PCI slot 3.

3 Power up the system and log on as Administrator.

4. Open the Network Control Panel.
5. Click on the Adapters tab.
6. Click Add....
7. Click Have Disk... and insert the driver disk for the Intel card.
8. Click OK.
9. Select HP NetServer 10/100TX PCI LAN Adapter and click OK.

   Result: You are prompted with the HPProSet dialog.
10. Click Test... to test the card.

    Note: Cable tests will fail if not connected to the network.
11. Click OK when tests complete.
12. Click OK.

    Result: The Intel PROSet window closes.
13. Click Close.

    Result: The Network Control Panel closes.
14. Enter the TCP/IP information for the card. Ensure you have the correct card selected by checking the drop-down list labeled Adapter.
15. Click OK.

    Result: The TCP/IP configuration window closes.
16. Click Yes to restart the system.

Replacing CLAN cards

Introduction

The CLAN network card is the optional network interface to the customer's LAN. The installed card can be either Intel or 3Com.

To replace a CLAN network card

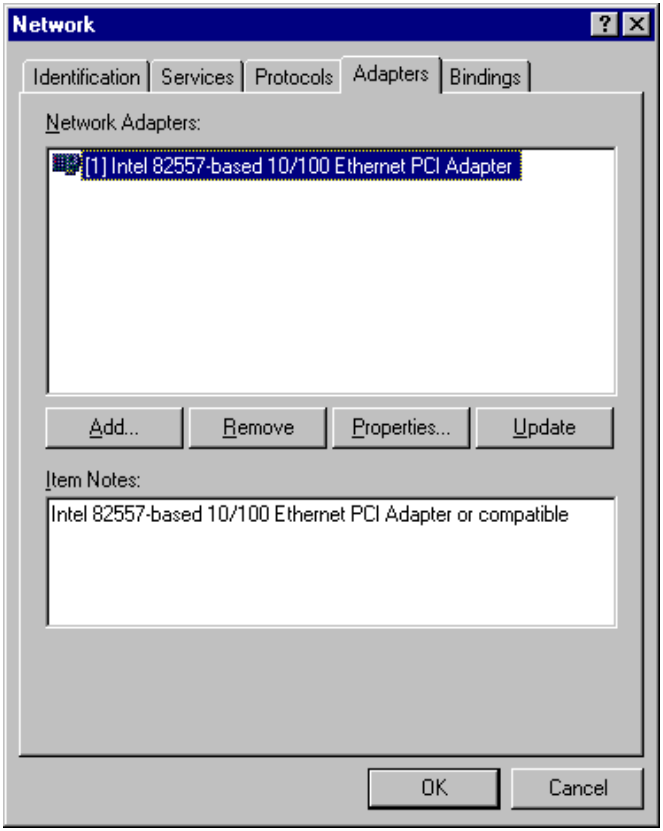
1. Disconnect both power cords and wait 20 seconds.
2. Check the appropriate slot assignment on page 165.
3. Remove the chassis cover to expose the installed cards.

   Note: For more information on removing the chassis cover, see "To remove a cover" on page 146.
4. Disconnect external network cables.
5. Refer to the figure on page 165 to determine which card is the CLAN network card.
6. Set aside any cables covering the card.

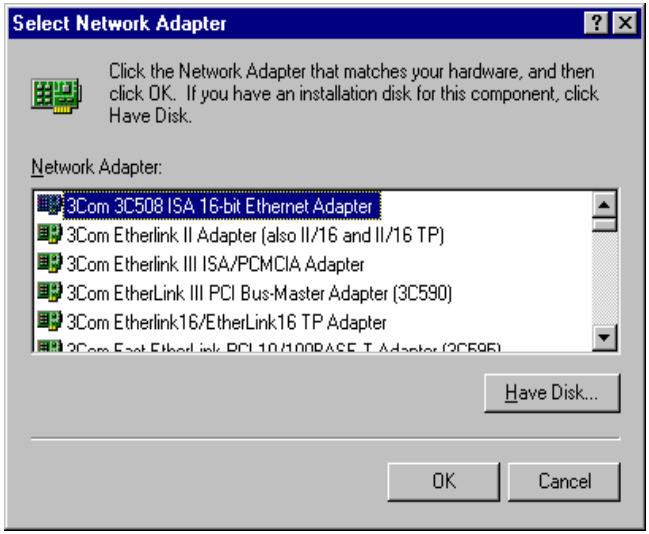
   Note: The network card has no internal cable connectors.
7. Free the card from the faceplate by unfastening the screw and removing the clamp from the rear cover.
8. Lift the card out of the slot and set it aside.
9. Unpack the replacement card and insert it into the proper slot.
10. Align the card with the faceplate and secure it by inserting the clamp through the rear cover and tightening the screw.
11. Replace the chassis cover.
12. Connect the CLAN network cable.
13. Reconnect both power cords.

To install a CLAN network card driver

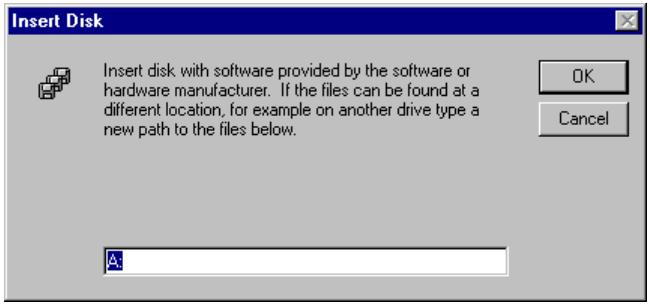
1. Restart and log on to the server as Administrator.
2. Open the Network Control Panel and select the Adapters tab.
3. To add the adapter, click Add.



4 To load the device drive, click Have Disk.


Select Network Adapter
Click the Network Adapter that matches your hardware, and then click OK. If you have an installation disk for this component, click Have Disk.
Network Adapter:
3Com 3C508 ISA 16-bit Ethernet Adapter
3Com Etherlink II Adapter (also II/16 and II/16 TP)
3Com Etherlink III ISA/PCMCIA Adapter
3Com EtherLink III PCI Bus-Master Adapter (3C590)
3Com Etherlink16/EtherLink16 TP Adapter
Have Disk...
OK
Cancel

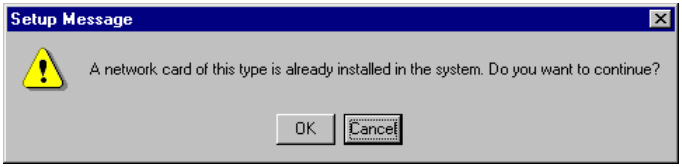
5 Insert the driver disk for the CLAN network card in the disk drive, and press Enter.


Insert Disk
Insert disk with software provided by the software or hardware manufacturer. If the files can be found at a different location, for example on another drive type a new path to the files below.
OK
Cancel
A:

6 If the driver disk contains drivers for more than one network card, the system prompts you to select the driver you want to install. Choose the driver that matches the installed CLAN card, and click OK.

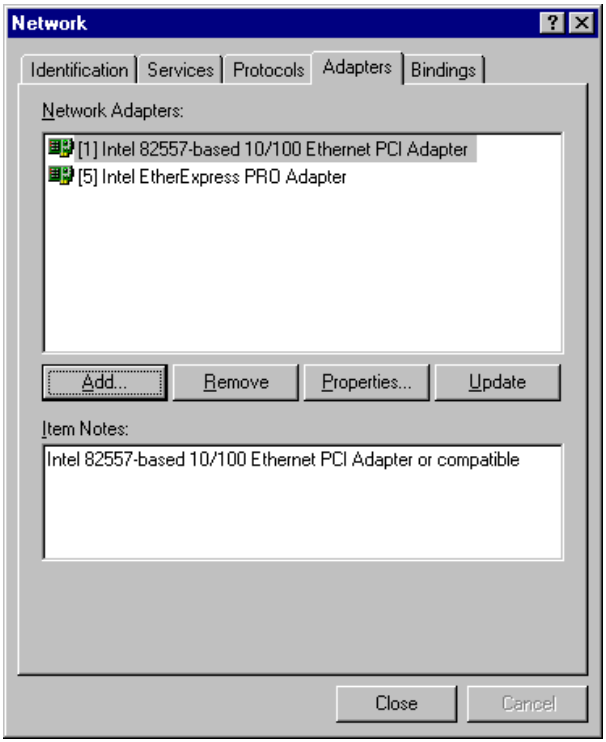
7 When the following window appears, click OK.

Note: You see this window only if ELAN and CLAN are the same.



Result: Some files are copied to the system and the new network card is listed in the network dialog box.

Note: We have not included screen shots for specific cards as they might differ, depending on your configuration. If you need help installing a driver, contact your Nortel Networks customer support representative.



8 To close the network control panel, click Close.

Result: The TCP/IP properties panel appears.

9 In the Adapters box, select the new driver installed.

10 Enter the customer-supplied IP address. Click OK.

Result: The system prompts you to restart the computer.

11 Click Yes.

Replacing the SCSI card

To replace a SCSI card

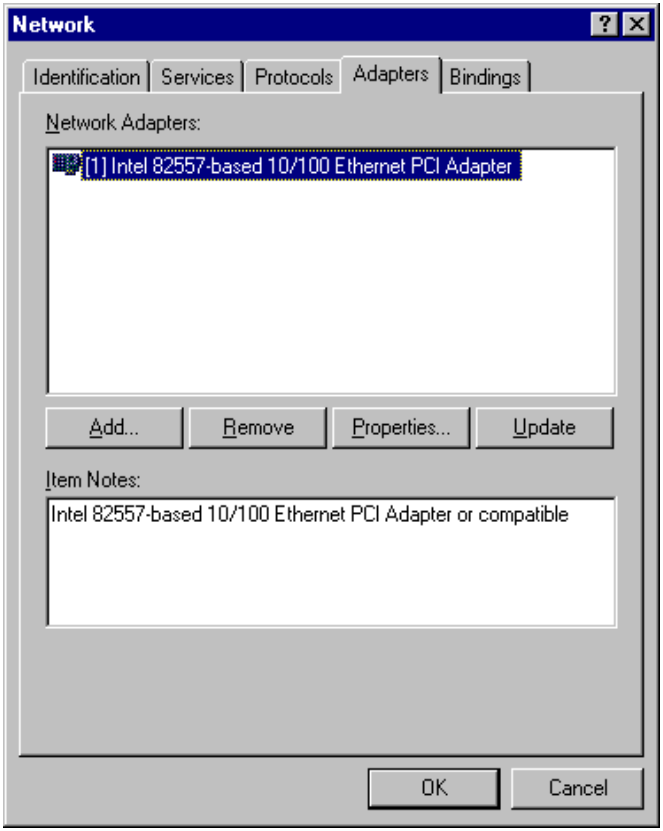
1. Disconnect both power cords and wait 20 seconds.
2. Check the appropriate slot assignment on page 165.
3. Remove the chassis cover to expose the installed cards.

   Note: For more information on removing the chassis cover, see “To remove a cover” on page 146.
4. Refer to the figure on page 165 to determine which card is the SCSI card.
5. Disconnect the internal SCSI cable and set aside any cables covering the card.
6. Free the card from the faceplate by unfastening the screw and removing the clamp from the rear cover.
7. Lift the card out of the slot and set it aside.
8. Unpack the replacement card and insert it into the proper slot.
9. Align the card with the faceplate and secure it by inserting the clamp through the rear cover and tightening the screw.
10. Reconnect the internal SCSI cable.
11. Replace the chassis cover.
12. Reconnect both power cords.

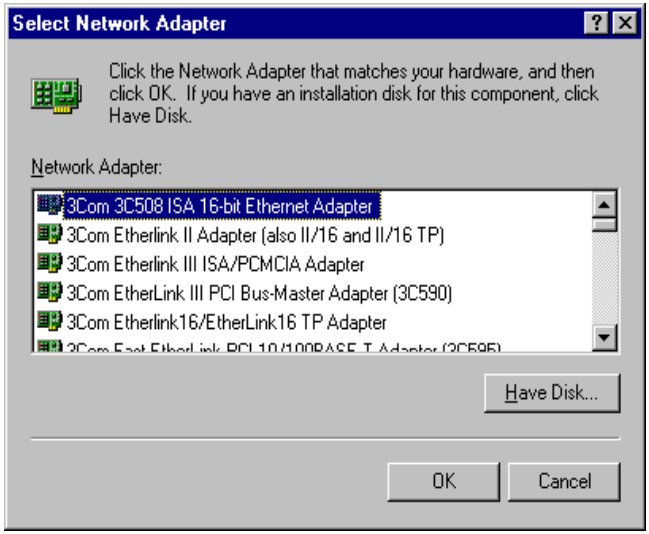
To install a SCSI card driver

1. Restart and log on to the server as Administrator.
2. Open the Network Control Panel and select the Adapters tab.

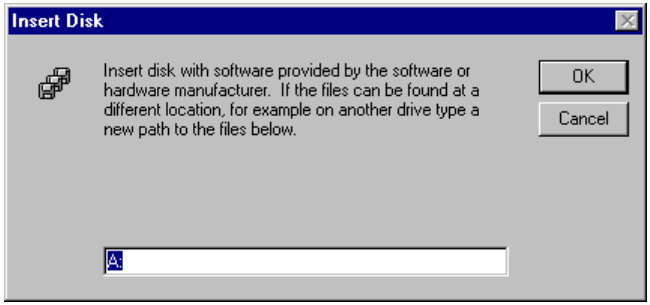
3 To add the adapter, click Add.



4 To load the device drive, click Have Disk.


Select Network Adapter
Click the Network Adapter that matches your hardware, and then click OK. If you have an installation disk for this component, click Have Disk.
Network Adapter:
3Com 3C508 ISA 16-bit Ethernet Adapter
3Com Etherlink II Adapter (also II/16 and II/16 TP)
3Com Etherlink III ISA/PCMCIA Adapter
3Com EtherLink III PCI Bus-Master Adapter (3C590)
3Com Etherlink16/EtherLink16 TP Adapter
Have Disk...
OK
Cancel

5 Insert the driver disk for the SCSI card in the disk drive, and press Enter.

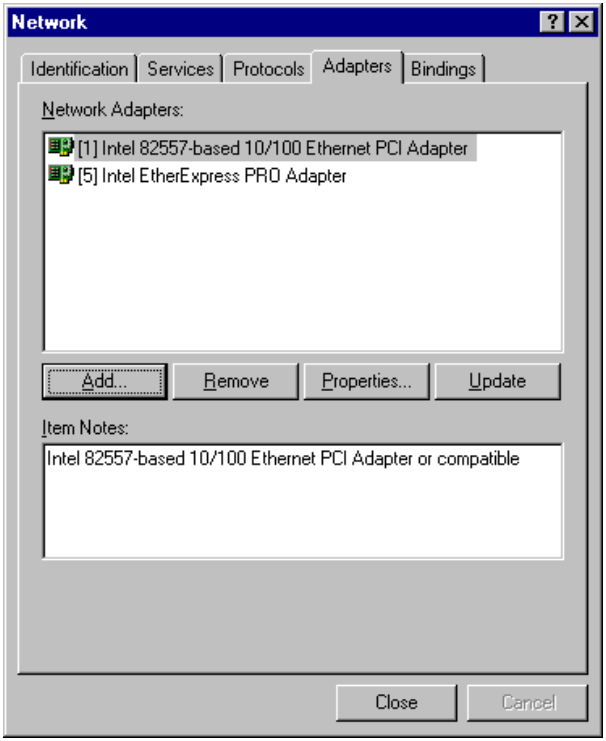

Insert Disk
Insert disk with software provided by the software or hardware manufacturer. If the files can be found at a different location, for example on another drive type a new path to the files below.
OK
Cancel
A:

6 If the driver disk contains drivers for more than one network card, the system prompts you to select the driver you want to install. Choose the driver that matches the installed SCSI card, and click OK.

7 When the following screen appears, click OK.

Result: Some files are copied to the system, and the new network card is listed in the network dialog box.

Note: Screen shots for specific cards are not included as they might differ, depending on your configuration. If you need help installing a driver, contact your Nortel Networks customer support representative.



8 To close the network control panel, click Close.

Result: The TCP/IP properties panel appears.

9 In the Adapters box, select the new driver installed.

10 Enter the customer-supplied IP address. Click OK.

Result: The system prompts you to restart the computer.

11 Click Yes.

Installing a tape drive

Introduction

A tape drive can be provisioned to allow backups of the data on the hard disk drives.

The 1003t server supports the SLR tape drive from Tandberg. The Tandberg SLR is a wide SCSI-2 device that can be mounted in the external chassis bays.

Backup times for tape drives depend on the quantity and type of data on the hard disk(s) and the transfer rate of the tape drive. Backup time can be estimated as the (number of kbytes to be backed up x 0.75)/transfer rate of kbytes/second, where the assumption is an effective compression ratio of 25 percent. As an example, to back up a full 2 Gbyte disk drive on a TDC4220 drive takes approximately 5000 seconds or 83 minutes.

If the tape drive is not installed, install and configure it. Connect the tape to the SCSI Adapter using the 68-pin cable with attached active terminator.

Ensure the tape drive is set on SCSI ID2, has the active terminator jumper set ON, and the parity check option is enabled.

To prepare the tape drive for installation

For the NTRH9034 Tape Drive to meet CISPRB22b EMC specifications, the following gasketting must be applied:

1 Open the tape drive and place it on a flat surface as shown below.

2 Apply the Chomerics CWA-019-0210 gasket (P0911914) to the tape drive as shown above. Ensure that you have good adhesion to the metal portion of the tape drive.

3 Continue with “Installing a drive in the media bay” on page 198 to install the tape drive on the server.

ATTENTION

The server platform uses active SCSI terminators to terminate SCSI buses. Failure to properly set the active terminator jumpers on the drive may create fire hazard.

Section F: Media drive bays

In this section

Overview	194
Removing drive carriers from the media drive bay	195
Removing media drives	197
Installing a drive in the media bay	198

Overview

Introduction

Media drive bays contain media devices, including CD-ROM, tape, and disk drives. If your media drives become damaged or you want to upgrade, you can replace these drives. Contact your Nortel Networks sales representative or dealer to purchase approved add-in peripheral devices. This section outlines procedures for replacing or upgrading any device in the drive bay.

Perform the following procedures to replace media devices:

- Remove drive carriers from the media drive bay.
- Remove media drives.
- Install a drive in the media bay.

Removing drive carriers from the media drive bay

Introduction

When replacing the media hard drives, the first step is to remove the drive carriers from the drive bay. Each drive carrier holds one media drive.

Requirements

- keys for the front bezel doors
- Phillips screwdriver
- cable identification labels
- pen or pencil

Locate the media drives

Media drives are located at the front of the chassis, at the top of the hard drive bays.

Media carrier

The media drive houses up to four devices. A drive carrier holds each device. If no device is installed, a blank panel is secured to the drive carrier for protection.

Media carrier slot assignment

The carrier is designed to stack four devices horizontally. The following table shows the orientation of the drives and the standard slot assignment for each required device:

Disk drive
CD-ROM
Tape drive
Blank panel

To remove device carriers from the media drive bay

CAUTION

Risk of equipment damage

Electrostatic discharge due to improper handling can cause components to be damaged or rendered unusable.

1 Remove the front cover and side panel from the chassis.

For more information on removing the covers, see “Removing the 1003t server covers” on page 145.

2 Locate the media drive, and loosen the Phillips head screws and washers that secure the carriers to the drive bay.

CAUTION

Risk of equipment damage

Cables can be easily damaged during this procedure. Check that no cables are crossed when moving the carrier in and out of the drive bay.

3 Label and disconnect cables from installed media drives, and then free the carrier from the chassis.

Removing media drives

Introduction

Once you have removed the drive from the carrier, replace the drive.

Requirements

To remove the media drives from the carrier, you require the following items:

- a Phillips screwdriver
- a container to hold screws

Accessing media drives

Media drives are secured to the carrier with four Phillips head screws. Since components overlap, existing drives sometimes need to be removed to replace or install a new device.

To remove media drive devices

1. Remove the existing disk drive by loosening the four screws securing the drive to the carrier. Remove the carrier.
2. Locate the four screws securing the CD-ROM to the carrier and loosen them. Slide the CD-ROM out of the carrier.
3. Repeat the above step for the tape drive and the blank panel, as necessary.

   Note: Save screws removed from a blank panel to use in securing a new device.

Installing a drive in the media bay

Requirements

- Torx T-15 screwdriver
- four screws from the previous procedure
- keys for locking the front bezel

To install a drive in the media bay

1. Slide the new drive into the drive carrier and secure it with four undercut head screws.
2. Reattach the removed devices to access a specific drive slot.
3. Position the carrier to the drive frame.
4. Carefully connect the device and power cables, and then slide the carrier into the drive bay, checking that the cables are free and undamaged.
5. Secure the carrier to the chassis with the two head screws provided by Hewlett-Packard.

Section G: Replacing memory

In this section

Overview 200
Installing additional memory 201

Overview

Introduction

The two memory boards (Memory A and Memory B) are located on the system board assembly, beneath the memory cage cover. Both memory boards are required. Each board has slots for eight DIMMs.

The following rules must be observed when adding memory:

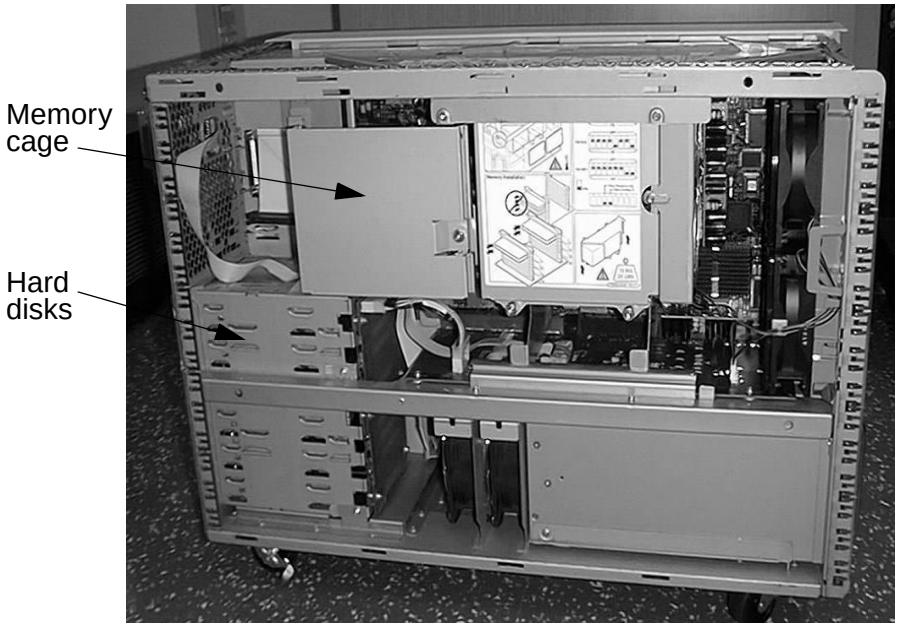
- DIMMs are added four at a time—two per memory card. The memory cards must be balanced.
- DIMMs are installed in banks 1 through 4:
  - J1 and J2 of Memory A and B are bank 1.
  - J3 and J4 of Memory A and B are bank 2.
  - J5 and J6 of Memory A and B are bank 3.
  - J7 and J8 of Memory A and B are bank 4.
- DIMMs must be 64 or 256 Mbytes, EDO buffered TSOP 50 ns.
- DIMM types cannot be mixed in a bank.

Note: Use only DIMMs listed in Information Assistance or Order Assistant.

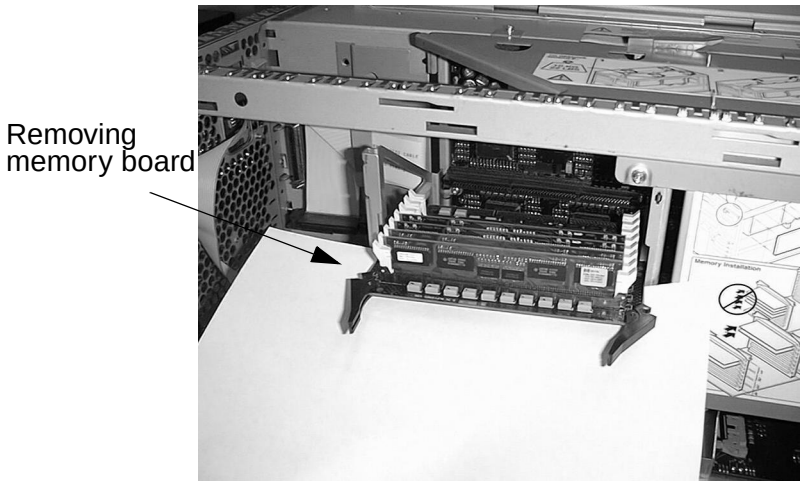
Installing additional memory

To install additional memory

1. Turn off the server and remove all power cables from the rear of the server. Pull out both power plugs.
2. Remove cover 3 and the front bezel. For more information on removing covers, see “Removing the 1003t server covers” on page 145.
3. Loosen the memory cage screw, and swing the cover open.



4 Unseat each memory board with the release clips, and remove the two boards. Place them on a suitable antistatic surface.



5 Make sure you are protected from static electricity by wearing an antistatic wrist strap. Install the DIMMs by following these steps:

a. Remove a DIMM from its container, handling the module by its edges. Lay it on an antistatic surface.

b. Choose the socket into which you will install a DIMM. DIMMs are installed four at a time, two per board. DIMMs must be TSOP 50 ns 64 or 256 Mbytes, with no size mixing per bank. DIMMs are installed starting at J1 and proceed to J8.

c. Spread the two latches on the socket outward.

d. Align the notches on the DIMM with the keys on the socket.

e. Hold the DIMM at 90 degrees to the system board, and then press the DIMM fully into the socket until the latches close. If the clips do not close, the DIMM is not inserted correctly.

6 Repeat step 5 to install all DIMMs for your memory configuration.

7 Reinstall the memory boards. Memory A and Memory B need to be identical, so they are interchangeable in their sockets.

8 Close the memory cage cover and tighten the screw.

9 Replace the cover.

10 Restore electrical connections.

Section H: Installing mass storage devices

In this section

Overview	204
Supported mass storage devices	205
Installing a hot-swap hard drive	209
Removing a hot-swap hard drive	212

Overview

Introduction

The server chassis has space for two hot-swap mass storage bays and is shipped with both. Like the primary cage, the secondary cage can hold up to six low-profile Ultra2 hot-swap hard drives.

There are two empty bays in the non-hot-swap bay area.You can use these bays to install 3.5-inch or 5.25-inch SE SCSI mass storage devices, LUN tape drives, or other Nortel Networks-tested accessories.

Supported mass storage devices

ATTENTION

Do not mix high voltage differential (HVD) driver and receiver devices with SE, LVD, or multimode driver and receiver devices on the same SCSI bus. I/O circuits used by devices with SE, LVD (Ultra2), or multimode drivers and receivers do not operate at HVD levels and should never be exposed to HVD environments. If you mix SCSI SE and SCSI LVD (Ultra2) devices, system performance is adversely affected. For best performance, use only LVD devices.

Introduction

The 1003t server supports two classes of mass storage devices: SCSI devices installed in the two non-hot-swap shelves next to the CD-ROM player and the flexible disk drive, and the Ultra2 SCSI hot-swap hard drives installed in the hot-swap mass storage cage. If you need additional mass storage capacity, you can order a second hot-swap mass storage cage. Use only high-performance Ultra2 hot-swap drives in the hot-swap mass storage cage.

You can add any standard (non-Ultra2) wide, single-ended SCSI device in the two non-hot-swap shelves, such as removable hard drives or tape backups. Use the SE connector on the provided cable. For the latest list of tested products, refer to the “Tested Products List” Help topic on the server Navigator CD-ROM.

Location	Drive types
Hot-swap mass storage bays	9.1 Gbyte Ultra2 10 000 rpm drive (up to 35W power consumption)
Non-hot-swap mass storage bays	Tandberg SLR1 13/26 Gbyte tape backup (narrow SCSI)

SCSI addressing

Do not set up any devices with SCSI address 7. This address is reserved for the SCSI controller.

Hot-swap drive cage addresses

The server comes with two hot-swap mass storage cages installed. In the 1003t server, the cages are on the lower front. The cage on the right is the primary cage, and the cage on the left is the secondary cage.

The supplier's SCSI addressing scheme associated with the left hot-swap mass storage cage begins at the bottom with SCSI address 0, and continues upward with addresses 1, 2, 3, 8, and 9. Addressing in the right cage begins at the bottom with SCSI address 10, and continues upward with addresses 11, 12, 13, 14, and 15. When the NetRAID firmware is upgraded during assembly or in the field, the SCSI addresses are changed to those shown in "Drive locations and labels" on page 74.

Do not install a narrow SCSI drive in any hot-swap mass storage bay.

Other SCSI device addresses

You can add a SCSI tape device for tape backup purposes. Set the tape backup's SCSI Into 2.

Hot-swap mass storage

The Ultra2 SCSI hot-swap hard drives for mass storage come in two heights: the 1-inch low-profile drive and the 1.6-inch half-height drive. The Ultra2 drives are low voltage differential (LVD) drives, and provide integration of the differential drivers and receivers into SCSI drive controllers. Ultra2 technology provides increased signal quality and ensures the same data integrity as the previous high voltage differential designs at a reduced cost. With the low voltage design, the SCSI bus cable can extend up to 12 meters.

CAUTION

Risk of high voltage

Do not mix devices with high voltage differential (HVD) drivers and receivers and devices with SE, Ultra2, or multimode drivers and receivers, on the same SCSI bus. I/O circuits used by devices with SE, Ultra2, or multimode drivers and receivers do not operate at HVD levels and should never be exposed to HVD environments. If you mix SCSI SE and SCSI Ultra2 devices, system performance is adversely affected. For best performance, use only Ultra2 devices.

Each Ultra2 disk drive module has two LED apertures, one for power status and one for activity status. Light pipes on the module transmit light to these apertures from LEDs on the inside rear of the hot-swap mass storage cage. The display meanings are described in the following table:

Power status LED	Activity status LED
Off: Disk not present or not connected to the cage	**Off**: No disk activity
Green (solid): Disk present	**Green (flashing)**: Accessing disk **Green (solid for more than one minute)**: Disk spinning up or hung **Amber (flashing)**: Disk failure predicted **Red (solid)**: Disk failed

Filler panels

When you have fewer drives than the hot-swap mass storage cage supports, you must insert a 1-inch filler panel in each empty disk location. Filler panels ensure that the drive cage has the proper ventilation and air flow. Remove the filler panel when you insert a new drive.

CAUTION

Risk of equipment damage

The drive spacers help the internal components to ventilate and prevent excessive electromagnetic radiation. If these drive spacers are left out of the drive shelves, thermal damage, excessive EMI, or both, can occur.

Configurations

The configurations can use filler panels and drive spacers to close up the front of the hot-swap mass storage cage. If there are gaps in the cage, the drives might not receive the proper ventilation and can suffer thermal damage.

- Add hard drives starting from the bottom of the hot-swap mass storage cage. If you are using one or more filler panels, insert them at the top of the cage.

Installing a hot-swap hard drive

CAUTION

Risk of equipment damage

Protect the drive from static electricity by leaving it in its antistatic bag until you are ready to install it. Before handling the drive, touch any unpainted metal surface to discharge static electricity. When you remove the drive from the antistatic bag, handle it only by the frame.

Do not touch the electrical components. Place the drive on the antistatic bag when you set it down.

Hard drives are very susceptible to mechanical shock and can be damaged by a very short drop. Take care when unpacking and handling the drive.

To install a hot-swap hard drive

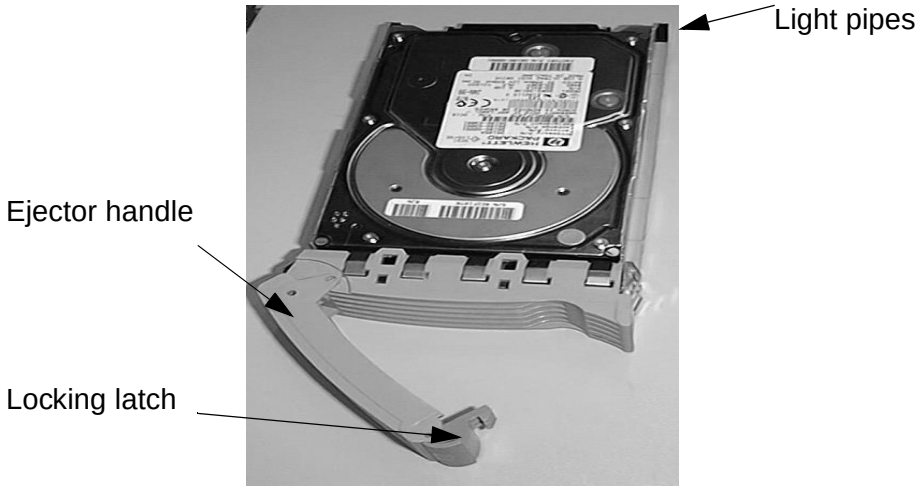
1. If there is a filler panel in the hot-swap mass storage location, remove the filler as follows:
   - **a.** Press the locking latch.
   - **b.** Pull the filler panel straight out.
2. Drive spacers attach to the disk drive module with four small feet. If you need to remove a drive spacer from the adjacent disk drive module, remove it as follows:
   - **a.** Slide the drive spacer back slightly away from your body.
   - **b.** Tilt up the front of the drive spacer to disengage the front two feet.
   - **c.** Pull the drive spacer forward slightly to disengage the back two feet and lift.

3 On the drive, press the locking latch in and pull the ejector handle out as far as possible.

CAUTION

Risk of equipment damage

Be careful when you open the ejector handle. Extreme force can snap off the handle.



4 Slide the drive slowly into the location until it stops.

CAUTION

Risk of equipment damage

Be careful not to damage the light pipes as you insert the drive. They are very fragile.

Insert the drive slowly and gently. If the drive is inserted too quickly when the system is on, in-rush current can cause the power supply to shut down.

5 Press the ejector handle in until you feel the latch click into place. When you close the ejector handle, the drive engages with the electrical connector in

the hot-swap mass storage cage and seats the drive. If the drive is unseated in the cage after closing the ejector handle, the handle was probably not pulled out far enough, and the locking latch failed to engage the hot-swap mass storage cage. Repeat the procedure from step 3.

Removing a hot-swap hard drive

CAUTION

Risk of equipment damage

Remove the drive slowly to ensure that the drive heads are parked prior to removal. Follow these instructions to prevent handling damage, such as head slaps or head actuator unlocking.

To remove a hot-swap hard drive

1. To unlock the drive, push the locking latch in, and then pull the ejector handle toward you.
2. Gently pull the drive out about 2 cm (1 in.) to disengage the power connection.
3. Wait about 30 seconds for the drive to stop spinning and the drive heads to park.
4. Use your hand to support the bottom of the drive. Slowly pull the drive straight out. Do not allow the drive to fall.
5. Place the drive in an electrostatic-protected container. Do not stack drives.

Integrated RAID

The server contains an integrated RAID controller, which puts the power of the RAID series of disk array controllers (DACs) in the server with no additional hardware.

For more information on the integrated RAID controller, see page 152.

Chapter 8

Troubleshooting

In this chapter

Overview	214
Section A: Troubleshooting tools	215
Section B: DiagTools	217
Section C: Diagnostic commands	221
Section D: Common installation problems	227
Section E: Error messages	235
Section F: NetRaid troubleshooting	247

Overview

Introduction

This chapter outlines basic troubleshooting procedures and provides references to troubleshooting information.

Prior to performing troubleshooting activities, ensure that the system is connected properly and that all power cords are plugged in to appropriate power strips and wall jacks.

Section A: Troubleshooting tools

In this section

Overview 216

Overview

Introduction

If you are having problems installing your 1003t server, there are a number of tools available for troubleshooting.

Troubleshooting tools

- the indicator lights on the 1003t front panel
- the 1003t Online Documentation CD-ROM, which contains the following information:
  - troubleshooting information
  - part information
  - a list of error messages and beep error messages
- 1003t Server Utilities (on the 1003t Navigator CD-ROM). At the 1003t Navigator Main Menu, select 1003t Utilities to use the following utilities:
  - DiagTools Utility: Perform hardware diagnostics for system verification, burn-in, and rapid troubleshooting. Copy DiagTools from the 1003t Navigator CD-ROM to disk before use.
  - Print or View Configuration: Print or view the current system configuration, including details of which boards are detected in the system and which resources are allocated to the boards.
  - Diskette Library: Generate any flexible disk available on the 1003t Navigator CD-ROM. For example, you can create the following disk: BIOS Update, NOS Drivers, 1003t Assistant, 1003t SNMP Agents, 1003t DMI Instrumentation, DiagTools, and Remote Assistant Upgrade.
  - Error Message Utility: View descriptions of errors that occur during the Power-On Self-Test (POST). The descriptions provide procedures for handling errors.
  - Event Log Report Utility: View descriptions of server management events and a list of errors and other system events.

Section B: DiagTools

In this section

Overview 218

Overview

Introduction

DiagTools for the 1003t server performs offline diagnostic testing, including testing for system and processor components, memory and storage elements, ports, and input/output devices. DiagTools, which is supplied with your 1003t server, checks key components of the 1003t server. There is also a menu for performing advanced tests. DiagTools is located on the 1003t Navigator CD-ROM. You must copy the DiagTools software to disk and then restart the server using the DiagTools disk.

DiagTools

DiagTools tests the following components:

- system board
- processors
- memory modules
- hard disk packs
- flexible disks
- keyboards
- serial ports
- parallel ports
- video monitor
- CD-ROM drives

DiagTools is an offline diagnostic test series with capabilities limited to a set of basic tests and a series of advanced tests. DiagTools cannot overwrite or destroy user data. Only the advanced tests require user inputs.

You can use DiagTools to support troubleshooting to carry out the following tasks:

- Display a high-level inventory of the system under test.
- Save and print a detailed inventory of hardware components.

- Conduct a basic test of components listed in the system inventory.
- Display “PASSED” or “FAILED” overall results of basic tests.
- Record detailed test results of basic system tests.
- Display a menu of advanced tests.
- Select and run one or a series of advanced tests.
- Add the record of results of advanced tests to the record of basic tests.
- View a list to locate the meaning of a specific error code.
- View one or more steps to help confirm and isolate error conditions.
- Browse the Support Ticket, which contains detailed inventories and test results.
- Add comments to the Support Ticket.

Section C: Diagnostic commands

In this section

Overview 222
Setting static route command - route 223
Tracing routes command - tracert 225

Overview

Introduction

Diagnostic commands for the 1003t server include

- setting static route command - route
- tracing routes command - tracert

Setting static route command - route

Introduction

This diagnostic command manipulates network routing tables.

Syntax

route [**-f**] [*command* [*destination*] [**MASK** *netmask*] [*gateway*] [METRIC *metric*]]

Parameters

-f

Clears the routing tables of all gateway entries. If this parameter is used in conjunction with one of the commands, tables are cleared prior to running the command.

-p

When used with the route add command, makes a route persistent across restarts of the computer. By default, routes are not preserved when the computer is restarted. When used with the route print command, it displays the list of registered persistent routes. It is ignored for all other commands.

command

Specifies one of four commands.

CommandPurpose

print	prints a route
add	adds a route
delete	deletes a route
change	modifies an existing route

destination
Specifies the host to send *command*.

MASK
Specifies, if present, that the next parameter be interpreted as the *netmask* parameter.

netmask
Specifies, if present, the subnet mask value to be associated with this route entry. If not present, this parameter defaults to 255.255.255.255.

gateway
Specifies the gateway.

METRIC
Specifies the route metric (cost) for the destination.

Notes:

The route utility does not accept a subnet mask value of 255.255.255.255 on the command line. To specify a subnet mask with this value, accept the default.

On a multihomed computer on which a network is available from more than one adapter card, all network traffic is passed over the first defined gateway. If you add a second gateway to the same network, the entry is added to the route table but is never used.

The route utility uses the Networks file to convert *destination* names to addresses. For the route utility to work correctly, the network numbers in the Networks file must specify all four octets in dotted decimal notation. For example, a network number of 284.122.107 must be specified in the Networks file as 284.122.107.0, with trailing zeroes appended.

All symbolic names used for destination or gateway are looked up in the network and host name database files Networks and Hosts, respectively. If the command is route print or route delete, wildcards can be used for the destination and gateway, or the gateway argument might be omitted.

Tracing routes command - tracert

Introduction

This diagnostic utility determines the route taken to a destination by sending Internet Control Message Protocol (ICMP) echo packets with varying time-to-live (TTL) values to the destination. Each router along the path is required to decrement the TTL on a packet by at least 1 before forwarding it, so the TTL is effectively a hop count. When the TTL on a packet reaches 0, the router is supposed to send back an ICMP Time Exceeded message to the source computer. **Tracert** determines the route by sending the first echo packet with a TTL of 1 and incrementing the TTL by 1 on each subsequent transmission until the target responds or the maximum TTL is reached. The route is determined by examining the ICMP Time Exceeded messages sent back by intermediate routers. Notice that some routers silently drop packets with expired TTLs and will be invisible to **tracert**.

Syntax

tracert [**-d**] [**-h** *maximum_hops*] [**-j** *host-list*] [**-w** *timeout*] *target_name*

Parameters

-d
Specifies not to resolve addresses to host names.

-h *maximum_hops*
Specifies the maximum number of hops to search for a target.

-j *host-list*
Specifies a loose source route along the host-list.

-w *timeout*
Waits the number of milliseconds specified by the timeout for each reply.

target_name
Name of the target host.

Section D: Common installation problems

In this section

Overview	228
Troubleshooting sequence for NetRAID	229
Other installation problems	231

Overview

Introduction

The following sections contain general procedures to help you locate installation problems.

CAUTION

Risk of equipment damage

Ensure that the 1003t server's covers are in place for proper cooling. When you replace a hot-swappable item (or open the 1003t server while it is operating), do not run it for more than two minutes with the covers off. The processor has its own fan and fan baffle, and it cannot be run for more than one minute without the fan baffle in place. Failure to observe these precautions can cause thermal damage to the 1003t server.

Troubleshooting sequence for NetRAID

Introduction

To troubleshoot an installation problem regarding NetRAID, perform the following procedures.

WARNING

Risk of personal injury

Before removing the cover, always disconnect the power cord to avoid exposure to high energy levels that can cause burns when parts are short-circuited by metal objects such as tools or jewelry. Unplug telephone cables to avoid exposure to shock hazard from telephone ringing voltages.

System configuration

Ensure that the system is configured properly. Most system problems are the result of incorrect system and SCSI subsystem configurations.

RAID configuration

The 1003t server is shipped with the hot-swap drive unconfigured for RAID. You can configure the hot-swap drive or disable NetRAID by performing the following procedures.

To configure a hot-swap drive

1 If you want NetRAID, ensure that RAID is enabled.

a. Restart the 1003t server.

b. When you see the message `Press <F2> to enter SETUP`, press F2. Refer to the setup information later in this chapter. Select “NetRAID enabled” and “SCSI channel A Included.”

c. To save and exit, press F10.

d. When the message, `Save configuration and exit now?` appears, click Yes.

Result: The 1003t server and Navigator restarts.

e. Run NetRAID Assistant to configure one or more RAID logical drives. Select Execute on the Configure Disk Array screen to start the NetRAID Assistant.

To disable RAID

If you do not want NetRAID, ensure that it is disabled by using the Setup utility to disable it.

Other installation problems

Network-related error

If the problem is a network-related error, determine if the server has enough memory and hard disk drive capacity. Consult your network operating system manual.

Connections

Verify that all cables and boards are securely plugged into their appropriate connectors or slots.

Added options

Remove all added options and change only one component at a time.

Power cords

Unplug both power cords, wait 20 seconds, plug in both power cords again, and restart the system.

Hardware error

1. Log users off the LAN and power down the server. Disconnect the power cord and unplug the telephone cables. Remove the 1003t server's cover. For more information on removing covers, see "To remove a cover" on page 146.
2. Simplify the 1003t server configuration to a monitor, one flexible and one hard disk drive, and a keyboard. Remove all third-party options, and reinstall options one at a time, checking the system after each installation. Reconnect the power cord and telephone cables.
3. Restart the system. If the system does not function, refer to "If the system does not power on" on page 232. If you get an error message, follow the instructions on the screen.

If the system does not power on

1. Ensure that all cables and power cords are firmly plugged into their proper receptacles.
2. Ensure that all parts of the system are powered on and properly adjusted.
3. If the server is plugged into a switched multiple-outlet box, ensure that the switch on the outlet box is powered on.
4. Plug a different electrical device (such as a printer) into the power outlet, and power it on.
5. Unplug the power cord, wait 20 seconds, plug in the power cord again, and restart the system.

If the system passes POST but does not function

If an error message appears on the screen, follow the procedures provided in the message. If the problem still persists, contact your Nortel Networks customer support representative. If an error message does not appear, follow these steps.

1. Check to ensure that the 1003t server is configured correctly in the Setup Utility.
2. If the server still does not work, turn it off and remove all external peripherals, except the monitor and keyboard. Once the peripherals are removed, power up the server.
3. If the server still does not work, turn off the monitor, the server, and all external devices, and check the internal hardware as follows:
   - **a.** Unplug the power cord and all telephone cables. Remove the 1003t server cover.
   - **b.** Check that all accessory boards are firmly seated in their slots.
   - **c.** Ensure that all disk drive power and data cables are securely and properly connected. Verify the mass storage configuration with the cabling and switch diagrams shown on the 1003t Reference Board, which is located in a plastic pouch on the interior of the 1003t covers.
   - **d.** Verify that the DIMMs are firmly seated on the System Board.
   - **e.** Replace the 1003t server covers, and lock the system.

f. Replace all power cords and power cables.

g. Power up the monitor.

h. Power up the server.

i. Check for error messages.

4 Copy DiagTools from the 1003t Navigator CD-ROM to disk, and run it from the disk.

Section E: Error messages

In this section

Overview	236
POST error codes	237
NetRaid Power-up (Boot) error messages	240
BIOS error messages	245

Overview

Introduction

If you get an error message, insert your 1003t Navigator CD-ROM into the CD-ROM drive and press the Reset button on the front of the 1003t server. An error message utility automatically displays the error message and provides a possible solution.

POST error codes

Introduction

Refer to the following list if error codes appear after the 1003t server is powered on:

Code	Message
00B00h	Missing Microcode Update data block for Pentium II CPU
00B0lh	Missing Microcode Update data block for Pentium II CPU
00Bl0h	Failure Loading Microcode Update data block for Pentium II CPU
00Bllh	Failure Loading Microcode Update data block for Pentium II CPU
00B20h	Defective Microcode Update data block for Pentium II CPU
00B2lh	Defective Microcode Update data block for Pentium II CPU
00090h	DIMM management failure
00080h	1003t Management Controller Selftest Failure
00510h	IDE Device #0 Error
00l00h	Keyboard Error
00l0lh	Keyboard Error
00012h	Incorrect System Configuration
000llh	Date and Time Lost
00300h	Flexible Disk Drive A Error
00301h	Flexible Disk Drive B Error
00801h	System Cache Error
00400h	CD-ROM Error

Code	Message
00500h	IDE Device Error
00501h	IDE Device Error
00040h	Invalid PC Serial Number, correct with F2
00020h	Option ROM Error
00105h	Mouse Error
00102h	Keyboard Error
00106h	Mouse Error
00103h	Keyboard Error
00800h	System Cache Error
00700h	System Memory Error
00401h	CD-ROM Error
00310h	Flexible Disk Drive Error
00311h	Flexible Disk Drive Error
00600h	Video Memory Error
00520h	IDE Device 0 Error
00521h	IDE Device 1 Error
00522h	IDE Device 2 Error
00523h	IDE Device 3 Error
00305h	Flexible Disk Drive Error
000llh	Date and Time Lost
00041h	Invalid internal product type, correct with F2
00306h	Flexible Disk Drive Error

Code	Message
00070h	Proteus FPGA data loading failed
000712	Either an incorrectly installed memory or the failure of one or more memory modules
000713	All four modules in a group are not the same size, or one or more modules are of an incorrect type or speed
00071h	Proteus FPGA data checksum failed
00072h	Integrated NetRAID controller firmware not responding

NetRaid Power-up (Boot) error messages

Adapter BIOS disabled. No logical drives handled by BIOS

Problem: The 1003t server BIOS is disabled. This is not a problem if the BIOS is intentionally disabled to prevent starting from the adapter.

Suggested solution: Enable the BIOS by using NetRAID express tools.

Channel disabled. Press F2 to run Setup and reenable channel, or press Ctrl-M for RAID utility

Problem: A RAID channel was configured, but then disabled. A channel might have been disabled unintentionally if you used the Setup F2 utility and reset the system defaults. When you reset to system defaults, you also reset the RAID channel configuration to its default value (one channel RAID on SCSI A).

Suggested solution:

1. If you disabled a channel unintentionally, follow these steps to enable it:
   a. Press F2.
   b. Verify that the settings for integrated RAID and SCSI channels A and B are set correctly. Make changes as necessary.
   c. To save and exit, press F10.
2. If you disabled a channel intentionally, press Ctrl M to run RAID express tools, clear your configuration, and reconfigure.

Host adapter at baseport xxxxh not responding

Problem: The NetRAID BIOS cannot communicate with the firmware on the adapter.

Suggested solution: Remove any NetRAID adapters from the PCI slots.

No NetRAID adapter

Problem: The NetRAID BIOS cannot communicate with the firmware on the adapter.

Suggested solution: Remove any NetRAID adapters from the PCI slots.

Configuration of NVRAM and drives mismatch Run view/add configuration option of Configuration Utility. Press any key to enter the Configuration Utility.

Problem: The configuration stored in NVRAM does not match the configuration stored in the drives. All drives contain one set of configuration information, and NVRAM contains a different set.

Suggested solution: To select the correct configuration from either NVRAM or the disks, follow these steps:

1. To enter NetRAID express tools, press any key.
2. From the Configure menu, choose the View/Add Configuration option. The system prompts you to select which configuration you want to view (NVRAM or disk).
3. To examine both configurations, use View/Add Configuration.
4. Resolve the configuration mismatch by soliciting and saving one of the two configurations.

Configuration of NVRAM and drives mismatch for Host Adapter - x Run View/Add Configuration option of Configuration Utility. Press any key to enter the Configuration Utility.

Problem: You have installed one or more NetRAID-3si adapters, and the configuration stored in the NVRAM of adapter x does not match the configuration stored in the drives. All drives on that adapter contain one set of configuration information, and NVRAM contains a different set.

Suggested solution: To select the correct configuration from either NVRAM or the disk, follow these steps:

1. Press any key to enter NetRAID express tools.
2. From the Configure menu, choose the View/Add Configuration option. The system prompts you to select which configuration you want to view (NVRAM or disk).
3. Use View/Add Configuration to examine both configurations.
4. Resolve the configuration mismatch by selecting and saving one of the two configurations.

Unresolved configuration mismatch between disks and NVRAM on the adapter

Problem: The configuration stored in NVRAM does not match the configuration stored on the drives, and configuration information on some drives conflicts with configuration information on other drives.

Suggested solution: To reconfigure your drives and restore your data, follow these steps:

1. Press Ctrl M to start NetRAID express tools, as described in “To start NetRAID express tools” on page 158.
2. From the Configuration menu, choose the View/Add Configuration option.
3. Use View/Add Configuration to examine the configuration stored in NVRAM. Write down all configuration information, including SCSI IDs of the physical drives in each array, array and logical drive numbers, stripe size, logical drive size, and adapter settings.
4. Clear your configuration and reconfigure all of your drives using one of the NetRAID utilities.
5. Restore your data from a backup copy.

1 logical drive failed

Problem: One logical drive failed to sign on.

Suggested solution:

1. Verify that all physical drives are connected and powered on.
2. Use the utility, such as NetRAID Assistant or NetRAID Config, to determine which physical drives are not responding, thus making the logical drive unavailable.
3. Correct the problem with the physical drive by reconnecting, replacing, or rebuilding it.

x logical drives degraded

Problem: x number of logical drives signed on in the degraded (critical) state.

Suggested solution:

1. Use a utility, such as NetRAID Assistant or NetRAID Config, to determine which physical drives are not responding, thus making the logical drives degraded.
2. Correct the problem with the physical drives by reconnecting, replacing, or rebuilding the physical drives.

1 logical drive degraded

Problem: One logical drive signed on in the degraded (critical) state.

Suggested solution:

1. Use a utility, such as NetRAID Assistant or NetRAID Config, to determine which physical drive is not responding, thus making the logical drive degraded.
2. Correct the problem with the physical drive by reconnecting, replacing, or rebuilding it.

Insufficient memory to run. Press any key to continue

Problem: There is insufficient memory in the 1003t server to run the NetRAID BIOS.

Suggested solution: Check the 1003t server to ensure that the memory is properly installed.

Insufficient memory

Problem: There is insufficient memory for the current configuration.

Suggested solution: Check to ensure that the memory is properly installed.

Following SCSI IDs are not responding Channel-x:a.b.c

Problem: On the channel listed (x), the physical drives with the SCSI IDs listed (a, b, c, and so on) are not responding.

Suggested solution: Verify that the physical drives are connected and powered on.

BIOS error messages

Following SCSI disk not found and no employ slot available for mapping it

Problem: The physical disk roaming feature failed to find the physical drive with the listed SCSI ID, and no slot is available in which to map the physical drive. The controller cannot resolve the physical drives into a current configuration.

Suggested solution: Reconfigure the array because the adapter cannot resolve the physical drives into the current configuration.

Following SCSI IDs have the same data <v.z> Channel-x:a.b.c

Problem: The physical disk roaming feature found the same data on two or more physical drives on channel (x) with the listed SCSI IDs (a, b, c, and so on). The adapter cannot determine which drive with duplicate information to use.

Suggested solution: Remove the drive or drives that should not be used.

Section F: NetRaid troubleshooting

In this section

NetRAID troubleshooting 248

NetRAID troubleshooting

NOS does not load (start)

Problem: The operating system does not load at startup time.

Suggested solution:

1. Use the Setup Utility to define the boot order. (Press the F2 function key during startup.)
2. Use NetRAID express tools to enable or disable the NetRAID BIOS as required.

Hard drive frequently fails

Problem: One of the hard drives in the array frequently fails.

Suggested solution:

1. Check the drive error counts using NetRAID Assistant Physical Drive Properties. Be aware that the drive error counter clears if the drive is moved or powered off while the adapter remains powered on.
2. Format the drive.
3. Rebuild the drive.
4. If the drive continues to fail, replace the drive with another drive with the same capacity, and rebuild.

System hangs when scanning devices for new configuration

Problem: After running NetRAID express tools or NetRAID Config and attempting to make a new configuration, the system hangs when scanning devices.

Suggested solution:

1. Check the drives' SCSI IDs on each channel to make sure each device has a different ID. Hot-swap devices cannot share the same SCSI ID as non-hot-swap devices on the same channel.
2. Check the cables for bent pins.

Management menu not displayed

Problem: Running NetRAID express tools or NetRAID Config does not display the Management Menu.

Suggested solution: Use a color monitor.

Cannot flash or update the EEPROM

Problem: Cannot flash or update the EEPROM.

Suggested solution: Make sure the jumper labeled J12 (Enable I20 Flash Writes) is present on the 1003t server's I/O board near the NetRAID SIMM.

NetRAID BIOS banner not displayed

Problem: The NetRAID BIOS and firmware banner does not appear.

Suggested solution: Use the Setup utility to ensure that the integrated NetRAID controller has been enabled for the appropriate channels.

Firmware continues to initialize

Problem: The message Firmware Initializing appears and remains on the screen.

Suggested solution: Be sure that the memory modules are rated at 50 ns.

Glossary

A

accelerator key

A key on a phoneset that an agent can use to place a call quickly. When an agent presses an accelerator key, the system places the call to the configured number associated with the key. For example, if an agent presses the Emergency key, the system places a call to the agent's supervisor.

access class

A collection of access levels that defines the actions a member of the access class can perform within the system. For example, a member of the Administrator access class might be given a collection of Read/Write access levels.

access level

A level of access or permission given to a particular user for a particular application or function. For example, a user might be given View Only access to historical reports.

ACD call

See Automatic call distribution call.

ACD-DN

See Automatic call distribution directory number.

ACD routing table

See Automatic call distribution routing table.

acquired resource

A resource configured on the switch that is under the control of the Symposium Call Center Server. Resources must be configured with matching values on both the switch and the Symposium Call Center Server.

activated script

A script that is processing calls or is ready to process calls. Before you can activate a script, you must first validate it.

activity code

A number that an agent enters on his or her phoneset during a call. Activity codes provide a way of tracking the time agents spend on various types of incoming calls. For example, the activity code 720 might be used to track sales calls. Agents can then enter 720 on their phonesets during sales calls, and this information can be generated in an Activity Code report.

administrator

A user who is responsible for maintaining the Symposium Call Center Server.

agent

A user who is responsible for handling customer calls.

agent logon ID

A unique identification number assigned to a particular agent. The agent uses this number when logging on. The agent ID is not associated with any particular phoneset.

agent to skillset assignment

A matrix that, when you run it, sets the priority of one or more agents for a skillset. Agent to skillset assignments can be scheduled.

agent to supervisor assignment

A definition that, when you run it, assigns one or more agents to specific supervisors. Agent to supervisor assignments can be scheduled.

application

1. A logical entity that represents a Symposium Call Center Server script for reporting purposes. The master script and each primary script have an associated application.The application has the same name as the script it represents. 2. A program that runs on a computer.

application program interface

A set of routines, protocols, and tools that programmers use to develop software applications. APIs simplify the development process by providing commonly used programming procedures.

associated supervisor

A supervisor who is available for an agent if the agent's reporting supervisor is unavailable. *See also* reporting supervisor.

Automatic call distribution call

A call to an ACD-DN. ACD calls are distributed to agents in an ACD group based on the ACD routing table on the switch.

Automatic call distribution directory number

DNs associated with an ACD group. Calls made to these DNs are distributed to agents belonging to the group, based on the ACD routing table on the switch.

Automatic call distribution routing table

A table configured on the switch that contains a list of ACD-DNs used to define routes for incoming calls. This ensures that incoming calls not processed by Symposium Call Center Server are queued to ACD groups and handled by available agents.

C

call age

The amount of time a call was waiting in the system before being answered by an agent.

call intrinsic

A script element that stores call-related information assigned when a call enters the Symposium Call Center Server. *See also* intrinsic, skillset intrinsic, time intrinsic, and traffic intrinsic.

call presentation class

A collection of preferences that determines how calls are presented to an agent.

call priority

A numerical value assigned in a script that defines the relative importance of a call. If two calls are in the queue when an agent becomes available, and one call is queued with a higher priority than the other, the agent receives the higher priority call first. *See also* skillset priority.

call treatment

A script element that enables you to provide handling to a call while it is waiting to be answered by a call center agent. For example, a caller can hear a recorded announcement or music while waiting for an agent.

call variable

A script variable that applies to a specific call. A call variable follows the call through the system and is passed from one script to another with the call. *See also* global variable, variable.

Calling Line Identification

This is an optional service that identifies the telephone number of the caller. This information can then be used to route the call to the appropriate agent or skillset. The CLID can also be displayed on an agent's phoneset.

CDN

See controlled directory number.

CLAN

See Customer local area network.

CLID

See Calling Line Identification.

client

The part of Symposium Call Center Server that runs on a personal computer or workstation and relies on the server to perform some operations. *See also* server.

command

A building block used with expressions, variables, and intrinsics to create scripts. Commands perform distinct functions, such as routing a call to a specific destination, playing music to a caller, or disconnecting a caller.

controlled directory number

A special directory number that allows calls arriving at the switch to be queued when the CDN is controlled by an application such as Symposium Call Center Server. When a call arrives at this number, the switch notifies the application and waits for routing instructions, which are performed by scripts in Symposium Call Center Server.

Customer local area network

The LAN to which your corporate services and resources connect. The Symposium Call Center Server and client both connect to the CLAN. Third-party applications that interface with the server also connect to this LAN.

D

DBMS

Database Management System

deactivated script

A script that does not process any new calls. If a script is in use when it is deactivated, calls continue to be processed by the script until they are completed.

default activity code

The activity code that is assigned to a call if an agent does not enter an activity code manually, or when an agent presses the activity code button twice on his or her phoneset.

default skillset

The skillset to which calls are queued if they have not been queued to a skillset or to a specific agent by the end of a script.

desktop user

A configured user who can log on to the Symposium Call Center Server from a client PC.

DHCP

See dynamic host configuration protocol.

Dial-Up Networking

See Remote Access Services.

Dialed Number Identification Service
An optional service that allows Symposium Call Center Server to identify the phone number dialed by the incoming caller.

directory number
The number that identifies a phoneset on a switch. The directory number (DN) can be a local extension (local DN), a public network telephone number, or an automatic call distribution directory number (ACD-DN).

directory number call
A call that is presented to the DN key on an agent's phoneset.

display threshold
A threshold used in real-time displays to highlight a value below or above the normal range.

DN
See directory number.

DN call
See directory number call.

DNIS
See Dialed Number Identification Service.

dynamic host configuration protocol
A protocol for dynamically assigning IP addresses to devices on a network.

dynamic link library
A library of executable functions or data that can be used by a Windows application. Typically, a DLL provides one or more particular functions, and a program accesses the functions by creating either a static or dynamic link to the DLL. A DLL can be used by several applications at the same time.

E

ELAN
See embedded local area network.

embedded local area network

A dedicated Ethernet TCP/IP LAN that connects the Symposium Call Center Server and the switch.

Emergency key

A key on an agent's phoneset that, when pressed by an agent, automatically calls his or her supervisor to notify the supervisor of a problem with a caller.

event

1. An occurrence or action on the Symposium Call Center Server, such as the sending or receiving of a message, the opening or closing of an application, or the reporting of an error. Some events are for information only, while others can indicate a problem. Events are categorized by severity: information, minor, major, and critical. 2. An action generated by a script command, such as queuing a call to a skillset or playing music.

expression

A building block used in scripts to test for conditions, perform calculations, or compare values within scripts. *See also* logical expression, mathematical expression, and relational expression.

F

first-level threshold

The value that represents the lowest value of the normal range for a statistic in a threshold class. The system tracks how often the value for the statistic falls outside this value.

G

global settings

Settings that apply to all skillsets that are configured on your system.

global variable

A variable that contains values that can be used by any script on the system. The value of a global variable can only be changed in the Script Variable Properties sheet. It cannot be changed in a script. *See also* call variable, variable.

I

Incalls key

The key on an agent phoneset to which incoming ACD and Symposium Call Center Server calls are presented.

Internet Protocol address

An identifier for a computer or device on a TCP/IP network. Networks use the TCP/IP protocol to route messages based on the IP address of the destination. The format of an IP address is a 32-bit numeric address written as four values separated by periods. Each value can be 0–255. For example, 1.160.10.240 could be an IP address.

intrinsic

A word or phrase used in a script to gain access to system information about skillsets, agents, time, and call traffic that can then be used in formulas and decision-making statements. *See also* call intrinsic, skillset intrinsic, time intrinsic, and traffic intrinsic.

IP address

See Internet Protocol address.

L

LAN

See Local area network.

Local area network

A computer network that spans a relatively small area. Most LANs connect workstations and personal computers and are confined to a single building or group of buildings.

logical expression

A symbol used in scripts to test for different conditions. Logical expressions are AND, OR, and NOT. *See also* expression, mathematical expression, and relational expression.

M

master script

The first script executed when a call arrives at the Symposium Call Center Server. A default master script is provided with Symposium Call Center Server, but it can be customized by an authorized user. It can be deactivated but not deleted. *See also* primary script, script, and secondary script.

mathematical expression

An expression used in scripts to add, subtract, multiply, and divide values. Mathematical expressions are addition (+), subtraction (-), division (/), and multiplication (*). *See also* expression, logical expression, and relational expression.

music route

A resource installed on the switch that provides music to callers while they wait for an agent.

N

night mode

A skillset state in which the server does not queue incoming calls to the skillset, and in which all queued calls are given night treatment. A skillset goes into night mode automatically when the last agent logs off, or the administrator can put it into night mode manually. *See also* out-of-service mode, transition mode.

NPA

See Number Plan Area.

Number Plan Area

Area code

O

object linking and embedding

A compound document standard that enables you to create objects with one application and then link or embed them in a second application.

ODBC

See Open Database Connectivity.

OEM
Original equipment manufacturer

OLE
See object linking and embedding.

Open Database Connectivity
A Microsoft-defined database application program interface (API) standard.

out-of-service mode
A skillset state in which the skillset does not take calls. A skillset is out of service if there are no agents logged on or if the supervisor puts the skillset into out-of-service mode manually. *See also* night mode, transition mode.

out-of-service skillset
A skillset that is not taking any new calls. While a skillset is out of service, incoming calls cannot be queued to the skillset. *See also* skillset.

P

pegging
The action of incrementing statistical counters to track and report on system events.

pegging threshold
A threshold used to define a cut-off value for statistics such as short call and service level. Pegging thresholds are used in reports.

PEP
See Performance Enhancement Package.

Performance Enhancement Package
A Symposium Call Center Server supplementary software application that enhances the functionality of previously released software by improving performance, adding functionality, or correcting a problem discovered since the original release.

phoneset
The physical device, connected to the switch, to which calls are presented. Each agent and supervisor must have a phoneset.

phoneset display
The display area on an agent's phoneset where information about incoming calls can be communicated.

Position ID
A unique identifier for a phoneset, used by the switch to route calls to the phoneset.

primary script
A script that is executed or referenced by the master script. A primary script can route calls to skillsets, or it can transfer routing control to a secondary script. *See also* master script, script, and secondary script.

R

RAN
Recorded announcement.

RAN route
See recorded announcement route.

RAS
See Remote Access Services.

recorded announcement route
A resource installed on the switch that offers a recorded announcement to callers.

relational expression
An expression used in scripts to test for different conditions. Relational expressions are less than (<), greater than (>), less than or equal to (< =), greater than or equal to (> =), and not equal to (< >). *See also* expression, logical expression, and mathematical expression.

Remote Access Services

A feature built into Windows NT and Windows 95 that enables users to log on to an NT-based LAN using a modem, X.25 connection, or WAN link. This feature is also known as Dial-Up Networking.

reporting supervisor

The supervisor who has primary responsibility for an agent. When an agent presses the Emergency key on the phoneset, the emergency call is presented to the agent's reporting supervisor. *See also* associated supervisor.

S

sample script

A script that is installed with the Symposium Call Center Server client. Sample scripts are stored as text files in a special folder on the client. The contents of these scripts can be imported or copied into user scripts to create scripts for typical call center scenarios.

SCM

See Service Control Manager.

script

A set of instructions that relates to a particular type of call, caller, or set of conditions, such as time of day or day of week. *See also* master script, primary script, and secondary script.

script variable

See variable.

second-level threshold

The value used in display thresholds that represents the highest value of the normal range for a given statistic. The system tracks how often the value for the statistic falls outside this value.

secondary script

Any script (other than a master or primary script) that is referenced from a primary script or any other secondary script. There is no pegging of statistics for actions occurring during a secondary script. *See also* master script, primary script, and script.

server
A computer or device on a network that manages network resources. Examples of servers include file servers, print servers, network servers, and database servers. The Symposium Call Center Server is used to configure the operations of the call center. *See also* client.

service
A process that adheres to a Windows NT structure and requirements. A service provides system functionality.

Service Control Manager
A Windows NT process that manages the different services on the PC.

service level
The percentage of incoming calls answered within a configured number of seconds.

service level threshold
A parameter that defines the number of seconds within which incoming calls should be answered.

Simple Network Management Protocol
A set of protocols for managing complex networks. SNMP works by sending messages, called protocol data units (PDUs), to different parts of a network and then analyzing the responses.

site
A system using Symposium Call Center Server that can be accessed using SMI.

skillset
A group of capabilities or knowledge required to answer a specific type of call.

skillset intrinsic
A script element that inserts information about a skillset in a script. Skillset intrinsics return values such as skillsets, integers, and agent IDs. These values are then used in queuing commands. *See also* call intrinsic, intrinsic, time intrinsic, and traffic intrinsic.

skillset priority

An attribute of a skillset assignment that determines the order in which calls from different skillsets are presented to an agent. When an agent becomes available, calls might be waiting for several of the skillsets to which the agent belongs. The server presents the call queued for the skillset for which the agent has the highest priority.

standby

In skillset assignments, a property that grants an agent membership in a skillset, but makes the agent inactive for that skillset.

supervisor

A user who manages a group of agents. *See also* associated supervisor, reporting supervisor.

switch

The hardware that receives incoming calls and routes them to their destination.

switch resource

A device that is configured on the switch. For example, a CDN is configured on the switch, and then is used as a resource with Symposium Call Center Server. *See also* acquired resource.

Symposium Call Center Server call

A call to a CDN that is controlled by the Symposium Call Center Server. The call is presented to the Incalls key on an agent's phoneset.

system-defined script

The Master_Script can be customized or deactivated by a user, but cannot be deleted. This is the first script executed for every call arriving at the call center.

T

TCP/IP

See Transmission Control Protocol/Internet Protocol.

telephony
The science of translating sound into electrical signals, transmitting them, and then converting them back to sound. The term is used frequently to refer to computer hardware and software that perform functions traditionally performed by telephone equipment.

threshold
A value for a statistic at which system handling of the statistic changes.

threshold class
A set of options that specifies how statistics are treated in reports and real-time displays. *See also* display threshold, pegging threshold.

time intrinsic
A script element that stores information about system time, including time of day, day of week, and week of year. *See also* call intrinsic, intrinsic, skillset intrinsic, and traffic intrinsic.

Token Ring
A PC network protocol developed by IBM. A Token Ring network is a type of computer network in which all the computers are arranged schematically in a circle.

traffic intrinsic
An intrinsic that inserts information about system-level traffic in a script. *See also* call intrinsic, intrinsic, skillset intrinsic, and time intrinsic.

transition mode
A skillset state in which the server presents already queued calls to a skillset. New calls queued to the skillset are given out-of-service treatment. *See also* night mode, out-of-service mode.

Transmission Control Protocol/Internet Protocol
The communication protocol used to connect devices on the Internet. TCP/IP is the standard protocol for transmitting data over networks.

treatment
See call treatment.

U

user-created script

A script that is created by an authorized user on the Symposium Call Center Server system. Primary and secondary scripts are user-created scripts.

user-defined script

A script that is modified by an authorized user on the Symposium Call Center Server system.

utility

A program that performs a specific task, usually related to managing system resources. Operating systems contain a number of utilities for managing disk drives, printers, and other devices.

V

validation

The process of checking a script to ensure that all the syntax and semantics are correct. A script must be validated before it can be activated.

variable

A placeholder for values calculated within a script, such as CLID. Variables are defined in the Script Variable Properties sheet and can be used in multiple scripts to determine treatment and routing of calls entering the Symposium Call Center Server. *See also* call variable, global variable.

W

WAN

See Wide area network.

Wide area network

A computer network that spans a relatively large geographical area. Typically, a WAN consists of two or more local area networks (LANs). The largest WAN in existence is the Internet.

workload scenarios

Sets of configuration values defined for typical patterns of system operations. Five typical workload scenarios (entry, small, medium, large, and upper end) are used in the Capacity Assessment Tool for capacity analysis for the Symposium Call Center Server.

Index

A

antistatic wrist strap 12

C

CLAN 43
COM1 42, 127
completing setup
  Windows NT 3.51 90
conductive foam pads 12
configuring
  server
    Windows NT 3.51 90
cooling fans 147
Customer Local Area Network (CLAN) 179

D

disk space
  formatting
    Windows 3.51 95

E

ELAN 42
  cards 174
  network card driver 175, 183, 187
electrostatic discharge 12
Embedded Local Area Network. See ELAN.
emergency start-up disk 119

F

fan 149
formatting
  disk space
    Windows 3.51 95

G

general safety 11

H

hard disk 79
  partitioning 73
hard disks 111
hard drive 160
hot fix 110
hot-swappable components 147, 153

I

installation
  hardware 8
  Windows NT 3.51 88
    completing setup 90
    configuring for network use 90
    software requirements 88
Installing 169
installing optional cards and tape drives 173
IP addresses 6

M

materials checklist 9
media device drives 197
modem 127, 128
MS-DOS 6.20 81
  installing 98

N

NetRAID Controller 27
Network Control Panel 175, 183, 187
network use
configuration 90

O

operating system
installing Windows NT 3.51 88
Optional 173

P

partitioning
additional disk space
Windows 3.51 95
pcANYWHERE32
installing
Symposium server 130
Symposium server
configuring pcANYWHERE32 133
Pentium III installtion 169
power supply 147, 148

R

RAID 152
card 147
level 1 152
SCSI hard drive configuration 160
RAS 59, 127
rear panel connections (AC only) 40
Redundant Arrays of Inexpensive Disks. See RAID.
remote access service 42
remote access service modem 128
remote tasks
Symposium server
configuring pcANYWHERE32 133
installing pcANYWHERE32 130
removing the drive bay screws 196
replacing hard drives 160
requirements
software
Windows NT 3.51 88
RJ-11 128

S

safety precautions 4, 9
SCA SCSI hard drives 147
server
installing Windows NT 3.51 88
performance 125
Windows NT 3.51
configuring for network use 90
set SCSI IDs 160
setup
Windows NT3.51 90
software
requirements for
Windows NT 3.51 88
specifications 23
environmental 24
technical 23
standard procedures 135

T

tape device driver 115
TCP/IP 59
tools 9
troubleshooting and maintenance 26

U

user name 6

V

Virtual Memory 123

W

Windows NT
  operating system 152
  server 98
Windows NT 3.51
  completing setup 90
  configuring for network use 90
  installation 88
  installing operating system 88
Windows NT 4.0 Server
  installing 98
  Service Pack 3 97, 109
workgroup name 135

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Reader Response Form

Reader Response Form

Symposium Call Center Server

1003t Installation and Maintenance Guide

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